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DEPARTMENT OF  
RESEARCH IN MEDICINE  
UNIVERSITY OF PENNSYLVANIA  
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OF THE

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PATHOLOGICAL SOCIETY

FOR THE YEAR 1894



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PROCEEDINGS  
OF THE  
NEW YORK PATHOLOGICAL SOCIETY.

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*Stated Meeting, January 24, 1894.*

GEORGE C. FREEBORN, M.D., PRESIDENT.

DR. J. S. ELY presented specimens from cases of

CARCINOMA OF THE HEAD OF THE PANCREAS.

At the last meeting of this Society I promised to present at an early date a case of carcinoma of the head of the pancreas, with symptoms similar to those described at that time in connection with a case of carcinoma of the common bile duct. To the case then referred to I am now able to add another of the same nature.

The first case is that of an old man, sixty-three years of age, an Irishman, and a shoemaker by occupation, whom I was asked to examine in March, 1892, by Dr. Ferrer, at the Out-Patient Department of Roosevelt Hospital. He said that, although he had not felt quite as strong as before, during the past year he had been well, until six weeks before coming to the hospital. At that time he began to suffer pain in the right hypochondrium and detected a lump there. He soon became weaker and was obliged to stop work. On March 3d, he rather suddenly became jaundiced and four days later he had a rather severe attack of vomiting, lasting a couple of days, the vomitus being whitish and containing no

blood. The pain in the region of the tumor continually increased and the tumor appeared to be increasing in size. He had lost much flesh, was greatly troubled with insomnia and constipation. He was seen on March 10th, when he was observed to be much emaciated and deeply jaundiced. The tongue was dry but clean. The arteries were hard and tortuous; pulse, 96. The chest was barrel-shaped and gave the signs of pronounced emphysema of the lungs; respirations, 24. Heart appeared normal. On the right side there was a large mass irregular in outline and nodular to the touch, which appeared to be the lower border of an enlarged liver. The liver dulness began at the fifth rib, and the mass extended downward an inch and a half below the free border of the ribs in the nipple line and three inches below in the parasternal line and reaching a point only one inch above the umbilicus in the median line. The mass was quite tender and was found to be slightly movable on deep inspiration and on gentle manipulation. No tumor could be felt underneath the enlarged liver, nor in the situation of the pylorus. Palpation of the lower portion of the abdomen developed nothing abnormal. The stomach appeared normal in size. Temperature was 99.8°. No œdema.

There could be little doubt that the patient was suffering from carcinoma and that the irregular enlargement of the liver was due to carcinomatous nodules in its substance, but the question arose as to the primary site of the growth. Knowing the extreme rarity of primary carcinoma of the liver, and because of the absence of marked gastric symptoms and gastrectasia, and, furthermore, because of the intensity of the jaundice, I inclined to the opinion that the case was one of carcinoma primary in either the head of the pancreas or in the common bile duct near its entrance into the duodenum, and the former appeared to be the more probable because of the late appearance of the jaundice. I give this reasoning here in detail because, as will be presently seen, the conclusion reached was most gratifyingly borne out by the autopsy a few days subsequently.

The patient readily consented to go into the hospital. There his pain was somewhat relieved by moderate doses of morphine. On the day after admission his nose bled quite freely and this was repeated a week later and several days successively before he died, increasing the evident and continuous loss of strength, until on March 23d, after a short period of unconsciousness and Cheyne-Stokes respiration, he died of exhaustion.

During the two weeks in hospital his temperature was at no time higher than  $101^{\circ}$ , only once reaching that point, four days before his death.

The autopsy was performed by me about twenty-four hours after death. The body was much emaciated and was extremely jaundiced. The peritoneum appeared normal, but scattered through the mesentery were many small hard masses, the largest of which were about one half inch in diameter. A number of these were situated at the point of attachment of mesentery and intestine. The head of the pancreas was found to be occupied by a tumor  $1\frac{1}{2} \times 1 \times \frac{3}{4}$  ins., hard, replacing the substance of the pancreas. This mass was continuous with a thickened mass around the common bile duct near its mouth. Above this point the common bile duct was found greatly dilated.

The surface of the liver was extremely green. Scattered through the liver substance, more particularly of the right lobe, were many more or less spherical masses, some discrete, others conglomerate; lighter in color, some almost yellow; very abundant near the lower border of the liver, and there giving it a very nodular outline. These presented, then, the characteristic appearance of carcinomatous nodules in the liver. The liver substance between these nodules showed dark centres and light peripheries of the lobules. The gall bladder was small and was adherent by old adhesions to the under surface of the liver, to the duodenum and to the tumor around the mouth of the common bile duct already described.

The stomach appeared normal. The spleen showed chronic congestion and interstitial splenitis.

The kidneys were of about the normal size; capsule moderately adherent; surface somewhat granular, with occasional small cysts. Cortex somewhat thickened, pale, markings indistinct.

The small intestine presented numerous small ulcers with greatly indurated bases, situated along the mesenteric attachment and continuous with the small tumors in the mesentery already described. Hemorrhage was thought to have occurred from some of these ulcers. The intestine contained a large amount of liquid, granular, dark greenish-brown fæces.

The heart was of normal size. The mitral valve was thickened and the chordæ tendineæ were short. Atheroma of aorta.

The lungs were excessively pigmented and on their surface showed considerable old pleurisy. Scattered through them were

a dozen or more hard nodules, the largest three quarters of an inch in diameter.

The bladder and testicles appeared normal.

Brain was not examined.

Microscopical examination shows the growths in all the organs to be carcinoma, as are also the masses in the mesentery and in the intestinal wall. The carcinoma is of the type which is sometimes designated "adeno-carcinoma," for in many places the arrangement of the epithelial cells is such as to suggest the acini of a gland, the cells themselves resembling the ordinary cuboidal epithelium of ducts. This arrangement is by no means everywhere apparent, however, the tumor in many places presenting the typical picture of small alveolar carcinoma. It is interesting that the structure of the metastases is much more uniformly that of adeno-carcinoma than is the supposed original tumor in the head of the pancreas.

With regard to the intestinal lesions there can be no doubt that the ulceration is a secondary result of the involvement of the intestinal wall by metastases which formed in the mesentery at the point of its attachment to the gut. The sections show several stages of the encroachment of these metastases on the intestinal wall and of the resulting ulceration. Intense congestion is visible in the floors of some of the ulcers, and it is undoubtedly from these that a part of the hemorrhage occurred, evidence of which was seen in the dark granular material filling the intestine. The occurrence of such metastases with secondary involvement of the intestine and ulceration is believed to be rather unusual; I have not before met with it. The material giving origin to these metastases must have been carried by the blood current.

As a further noteworthy feature of this case, though having nothing to do with it as a case of carcinoma, I would call your attention to the intense anthracotic pigmentation of the lungs and to the fact that the same pigment is found in considerable amount in the liver, lying in the interlobular connective tissue. I have occasionally met with anthracotic pigmentation of some of the upper mesenteric lymph nodes, but have not before seen such pigmentation of the liver.

A tumor of the structure and location here described might have its origin in the duodenum, in the common bile duct, or in the head of the pancreas. As usual, it is impossible to say with certainty from which of these structures it originated in the pres-

ent case, but, as the head of the pancreas occupied the centre of the carcinomatous mass which it was evident was the primary nodule of the tumor, it is believed to have begun its growth in the pancreas. A measure of support is given to this view by the second case.

The second case is that of a man, sixty-one years of age, a varnisher by occupation. He was treated in Roosevelt Hospital for two months or more during the fall of 1891 for chronic diffuse nephritis and was discharged improved.

On March 24, 1892, he returned to the hospital saying that soon after leaving the hospital he began again to feel weak and to suffer pain in the abdomen, and that he was coughing in the morning and had occasionally bloody expectoration. He had also been troubled with dyspnœa on exertion, palpitation of the heart, and had been unable for some days to lie on the right side. On March 14th he first noticed jaundice which steadily increased from that time, and he had been confined to bed for about a week.

On admission he was deeply jaundiced, was emaciated, and had œdema of the feet, legs, and thighs. Tongue was coated and dry. Arteries very atheromatous; pulse regular, but feeble, 96. Ascites. Respiration rapid (24) and labored. Temperature, 99°.

Physical examination developed evidence of an accumulation of liquid in both pleural cavities, more particularly in the left, on which side there was flatness from just below the spine of the scapula to the base of the chest. The chest was also emphysematous. The heart dulness was increased, and there was roughening of both sounds at its apex. Hepatic dulness began at the fifth rib and extended to the free border of the ribs. Considerable œdema and ascites.

His pain was somewhat relieved by V. S. sol. of morphine, but he very soon developed orthopnœa, and constantly lost strength, dying on March 28th, four days after his entrance into the hospital.

The autopsy was performed the same day by Dr. Ewell, House Physician of the hospital at that time. The following is from the hospital record:

Abdominal cavity contains a large amount of bile-stained liquid. A few recent adhesions of the intestines. Everything deeply bile-stained. Left pleural cavity contains a large amount

of bloody liquid. Irregular adhesions all over left lung, old and recent.

Heart somewhat enlarged. Left ventricle dilated and hypertrophied. Endocardium below aortic valves thickened, and scattered patches of thickening in other parts of the ventricular endocardium. Mitral valve thickened, calcareous. Auriculo-ventricular opening admits two fingers.

Lungs. Lower lobe of left lung compressed, carneous. At apex there is a cicatrix on the pleura. Nodule of old healed phthisis in the lung half inch in diameter. Right lung shows similar small nodule of healed phthisis at the apex.

The peritoneum around the liver is covered with a layer of loose fibrin binding the viscera in its neighborhood together. Gall bladder distended, as large as the fist, and filled with liquid bile.

Cystic duct apparently obliterated. The liver weighs 3 lbs. 8 oz.; is very hard. Its section shows increase in interlobular fibrous tissue, with congestion of the centres of the lobules.

The kidneys are small, capsule is adherent, surface granular, cortex thin, markings obliterated.

The spleen is small and hard and shows recent inflammation of its capsule similar to that of the liver, besides old perisplenitis.

Stomach normal. Duodenum normal. Small intestine normal, contains white faeces.

The head of the pancreas is hard near its tip. Behind this is a fluctuating swelling which contains creamy pus and is  $1\frac{1}{2}$  inch in diameter. A second, smaller, separate abscess was found in the tail of the pancreas.

*Microscopical examination* of the hard mass in the head of the pancreas shows it to be carcinoma and to have the same structure in this case as was noted in the former: adeno-carcinoma—the appearance in many places being almost identical in the two cases. The mesenteric lymph nodes in the neighborhood of the pancreas show no evidence of secondary involvement nor is there any trace of metastasis anywhere to be found. The suppurative inflammation which culminated in the formation of the abscesses noticed at the autopsy is found to be widespread in the pancreas; it is undoubtedly from this that the peritonitis, which is noted to have been more intense in the upper part of the abdominal cavity, developed.

The liver shows a moderate degree of interlobular connective



tissue increase, and is, of course, deeply bile-stained. The kidneys are in a state of advanced chronic diffuse nephritis and the spleen shows interstitial splenitis.

In this case, then, the death of the patient as the result of Bright's disease and peritonitis has enabled us to see carcinoma in the head of the pancreas in a very early stage of its development and while still limited to its original site.

But these cases are of interest from the clinical as well as from the pathological standpoint. The similarity of the symptoms will have been noticed and suggests a certain definiteness of the clinical type of tumors of this region. The most pronounced and most constant symptom is obstructive jaundice and it is believed that the rather rapid and persistent development of this symptom in a patient past fifty years of age should always suggest the possibility of carcinoma of the common bile duct or of the head of the pancreas.

DR. J. H. M. BYRON asked regarding the second case, whether the lungs had been examined, and also the exudation in order to determine whether or not there was a primary endothelioma of the pleural cavity.

DR. ELY replied he did not make the autopsy, and had not been able to see the physician who had made it, but if there had been anything noticeable about the pleura he felt sure that it would have been noted. There was a great deal of œdema and advanced ascites, and it was thought at the time to be not an exudation but a simple transudate.

DR. BYRON said he had asked this question because he was familiar with cases of endothelioma which had been presented by Dr. H. M. Biggs, and in which the first symptoms were those of small exudations of bloody serum into the pleural cavity. These had been diagnosticated at first as ordinary pleurisy, but at the autopsy the pleura had been found to be greatly thickened, and there were immense numbers of metastases.

DR. T. S. SOUTHWORTH presented specimens from a case of

#### GENERAL TUBERCULOSIS.

The specimens were removed from a child of fourteen months, in the Nursery and Child's Hospital. It was one of twins, and when born in November, 1892, weighed  $4\frac{1}{2}$  pounds. It was breast-fed, and did well up to the spring of 1893, when it had

whooping-cough. At the age of six months it weighed 16 pounds. Last August it began to have a slight cough, and since then it steadily failed, until at the time of its death, on January 18, 1894, it weighed only  $8\frac{1}{4}$  pounds. The chest was examined once or twice by the house-physician, but no very definite physical signs were found.

At the autopsy the emaciation was very noticeable. The abdomen was distended. On opening the thorax the right pleura was found firmly adherent over the upper and middle lobes of the right lung, and there was a yellow, cheesy mass found beneath the pleura, embedded in the upper and middle lobes on the anterior surface. It was adherent to the pleura, but not to the lung tissue. When removed, it left a rough cavity which did not apparently communicate with the bronchi. The edges of this cavity were sharp and slightly overhanging. The upper and middle lobes of the lung were consolidated, and showed tubercles on the surface. The adjacent bronchial glands were large and cheesy. The left lung also showed scattered patches of tubercular infiltration. The pericardium was adherent over the left border of the right ventricle. The heart and valves were normal. The liver showed a few tubercles on the surface. There was general adhesive peritonitis binding together all the abdominal organs, but there was no fluid in the abdominal cavity. The spleen was covered with lymph, its capsule was opaque, and there were a few miliary tubercles on its surface. The kidneys were apparently normal. Both the large and small intestines were covered with lymph and studded here and there with tubercles beneath the peritoneum, and also in the mesentery. In the large intestine were some superficial ulcerations, and other areas which appeared to be suppurating lymph nodes which had not broken down. The mesenteric glands were much enlarged and cheesy. The nodule found embedded in the upper part of the right lung was about the size of a walnut. Smears were made from the deeper portions of the mass, and tubercle bacilli found. Small pieces were also examined microscopically, and showed cheesy degeneration and the remains of giant-cells. There was no definite structure of the lymph node remaining.

#### A CASE OF PYURIA.

DR. F. TILDEN BROWN reported a case for diagnosis. He said that he had had a patient suffering from pyuria under his care

for five months. The patient had been bed-ridden for the greater part of this time. There was no abnormal temperature. The cystoscope showed pus coming from the left ureter. He had not been able to exclude tuberculosis of the genito-urinary tract, although repeated search had been made for tubercle bacilli. At times there was also a slight hæmaturia and some discomfort in the left side and left testis, suggestive of a renal calculus. The pain had been accounted for by the discharge in the urine of certain shreds. The hæmaturia had been rather more marked after exertion. The urinary examinations had been very contradictory. The speaker raised the question, whether we could expect a tubercular process of the kidney where there was a profuse suppuration, and yet no associated micro-organisms and no elevation of temperature. He thought it would be rather unusual. If due to a stone in the kidney, one would expect more intense subjective symptoms. The leucocytes appeared to be well formed. He had examined for filaria, bilharzia, and similar organisms, with negative result.

DR. T. M. PRUDDEN remarked that in making examinations where tuberculosis was suspected, it was desirable to use the sediment from large quantities of urine. Lately he had been accustomed to ask for the urine of two or three days, and after decanting, the sediment was placed in the centrifugal machine, and still further concentrated. By this method tubercle bacilli could be found in some cases where the more usual methods of examination gave only a negative result.

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*Stated Meeting, February 14, 1894.*

GEORGE C. FREEBORN, M.D., PRESIDENT.

DR. E. HODENPYL presented specimens from a case of

RUPTURE OF THE LIVER.

There was extensive laceration of the organ due to an injury, yet death did not occur for three weeks, and was then due to peritonitis and septic infection. The patient was said to have had a kick from a horse, yet he received practically no attention until about three weeks later, when he reached the hospital after

a ride in a street-car and a short walk. He was much exhausted at the time of admission and died two hours later. At the autopsy the body was found to be emaciated. There was no external sign of injury, and no fracture of the ribs or vertebræ. There was an intense peritonitis with connective-tissue bands uniting the coils of intestine. Behind the intestine on either side of the vertebral column were two large collections of stinking blood—at least two quarts on either side. The whole of the right lateral border of the liver was torn away, and the right lobe was exceedingly friable so that a dull probe could be inserted into the liver tissue for at least six inches. The fact that the man survived the injury so long was very remarkable, for most cases of rupture of the liver prove fatal within a few hours from hemorrhage.

DR. HODENPYL also presented a specimen of

#### SUB-PHRENIC ABSCESS.

It had apparently resulted from perforation of the gall-bladder. The subject was a man twenty-three years of age, who had been excessively intemperate. In the winter of 1892 he had severe colicky pains in the region of the umbilicus, lasting for three weeks. The present illness began on December 10th, with a nearly constant pain referred to the umbilicus and upper abdominal region. Two days later, he noticed the abdomen beginning to swell, and ever since then it had steadily increased in size. On admission he was well nourished, and very slightly jaundiced. There was some swelling of the feet and limbs; the abdomen was considerably distended, but there was no fluctuation; the temperature was 100°; pulse, 112; respirations, 24; urine normal. Physical examination showed flatness over the lower part of the right lung beginning at the third space, and some dulness posteriorly over the left lung. The heart was normal; splenic dulness not increased. On December 22d, paracentesis abdominis was performed, and 166 ounces of slightly turbid reddish-brown fluid were withdrawn. This gave marked, though but temporary relief. On December 25th, a needle was inserted into the right side of the chest posteriorly and some bloody serum was drawn off, and on the following day paracentesis was again performed. Some reddish-brown fluid was evacuated, and this gave a distinct bile reaction. On December 27th, a 4-inch vertical incision in the

right lumbar region was made about the level of the umbilicus, and on cutting through the abdominal muscles and peritoneum about  $2\frac{1}{2}$  litres of clear brownish fluid escaped. The incision was enlarged and disclosed a cavity of considerable size. There was a well marked line binding together the intestines and separating them from the peritoneal cavity. In the upper part of the incision was a rounded cicatrix, half an inch in diameter. The wound was packed. After two days the patient developed diarrhœa with some blood in the stools, and on January 16th he died. No complete autopsy was permitted, but the liver was removed through the abdominal wound. Over the whole right lobe posteriorly was a large collection of fibrin and pus immediately beneath the diaphragm. Over the whole lower lobe of the right lung was a rather thick coating of fibrin and pus. There was an intense peritonitis with organized adhesions. The gall-bladder showed a circular opening about the size of the little finger, with rounded edges. This might have been ante-mortem, or due to the necessarily forcible extraction of the liver.

The speaker said that in most of the cases of sub-phrenic abscess that had been reported, the condition was due to the extension of a pleuritis, but in this case he thought it was rather due to rupture of the gall-bladder.

DR. HODENPYL further presented a specimen of

#### CARCINOMA OF THE STOMACH.

It was removed from a man fifty years of age, who had suffered for a number of years with phthisis. For the last year of his life there were marked gastric symptoms, particularly vomiting of "coffee-ground" material. He was so much emaciated that the tumor could be easily felt on palpation of the abdomen. There was not much stricture of the pylorus, but just above this point was an ulcer  $1\frac{1}{2}$  inches in diameter and 1 inch deep. There were several large capillaries in the base of this ulcer, from which the hemorrhage probably occurred.

DR. GEORGE P. BIGGS said that last spring he had presented to the Society a specimen not unlike the one of sub-phrenic abscess just exhibited. In his specimen there was a large calculus having the shape of the interior of the gall-bladder, and lodged in the common and hepatic ducts. There was one quite large ulcer and several small ones in the fundus of the gall-bladder, and several

collections of pus around the gall-bladder with perforation into the pleural cavity.

DR. E. K. DUNHAM presented a

#### SARCOMA OF THE TONGUE.

It had been removed by operation by Dr. Joseph D. Bryant from a man sixty-one years of age, whose family history was negative except that several of the members of the family had died of tuberculosis. The man was somewhat alcoholic in his habits, and was accustomed to smoke ten pipes of tobacco a day, using a briarwood pipe. About eight months ago he bit his tongue on the right side, one inch from the tip, causing a blister, which by contact with a rough tooth became irritated. A tumor slowly grew on this spot, and when first seen was three fourths of an inch in diameter. On microscopical examination the structure of the tumor appeared to be that of a large round-cell sarcoma.

The speaker said that the literature of the subject was very meagre. In 1892 Max Schreier reported several cases. He also recorded two cases in which there was an anatomical diagnosis of sarcoma of the tongue, but in which no clinical history was obtainable. In the cases which he cited, the majority were at the back of the tongue, and most of them were either small round-cell, spindle-cell, mixed-cell, or lympho-sarcomata. The only large round-cell sarcoma reported was one by Mercier, in 1890, situated near the tip of the tongue on its dorsal surface. It was a fungous growth attached to the tongue by a thick pedicle, and was made up of large round cells, some of which were multinucleated with a small amount of intercellular stroma which could be more or less distinctly traced from the connective tissue surrounding the tumor. In that case, as in the one just presented there was no ulceration around the tumor; the epithelium was intact and showed no tendency to involve the underlying tissues.

DR. T. M. PRUDDEN said that the specimen seemed to be undoubtedly one of sarcoma, perhaps of the kind sometimes called angio-sarcoma. He had seen three or four small sarcomata of the tongue, all of the spindle-cell or small round-cell variety.

The specimen exhibited under the microscope was so beautiful he would like to ask how it had been hardened.

DR. DUNHAM replied that the whole tumor was first hardened



in a saturated solution of bichloride for five hours; then in 70 per cent. alcohol containing some iodide of potassium, and then successively in 80 per cent., 95 per cent., and absolute alcohol. The section was cut in paraffine.

#### TYPHOID FEVER WITH EXTENSIVE ULCERATION.

DR. GEORGE P. BIGGS presented a supplementary report on the case of typhoid fever with extensive ulceration of the cæcum which he had presented some time ago to the Society. Cultures from the spleen showed bacilli possessing all the morphological and biological characters of typhoid bacilli, including the growth on potato. Cultures from the peritoneal exudate showed the streptococcus pyogenes to be very abundant, with bacilli which had apparently the characteristics of the colon bacillus, including the development of bubbles of gas in sugar-cane bouillon.

#### PULMONARY THROMBOSIS AND INFARCTIONS.

DR. GEORGE P. BIGGS also presented a supplementary report on his recently reported case of this nature. It was one of dilated heart with multiple pulmonary thrombi and infarctions. The areas in the lung showed the ordinary structure of hemorrhagic infarctions, and branches of many of the pulmonary arteries showed distinct endarteritis. The lesion most frequently seen in the sections was a fibrous thickening of the intima with slight narrowing of the lumen; distinct obliterating endarteritis was occasionally seen. The media and adventitia of some of the vessels contained a few small round cells. The vessels of the liver and kidneys appeared to be normal. It was rather interesting to note the absence of any gross evidence of arterial disease, and the evidence microscopically of slight, but distinct changes apparently limited to the pulmonary arteries. The arterial disease with the marked enfeeblement of the circulation present in this case fully accounted for the thrombi, and apparently for their presence only in the lung.

In connection with that case the speaker reported one presenting very similar lesions. A woman forty years of age, had had for several years more or less palpitation, dyspnœa, and œdema of the legs. She had never had rheumatism. Five months before death she had severe headache, cough, vomiting, dyspnœa,



and dimness of vision, soon followed by œdema of the feet. The urine became scanty and high-colored. On admission, the temperature was  $101^{\circ}$ , respirations 40, and the pulse 108; there were many subcrepitant râles over the lungs posteriorly. The apex beat was in the fifth space,  $5\frac{1}{2}$  inches to the left of the median line. A faint systolic murmur was heard at the apex; the heart action was regular and of fair force, and the pulse had a high tension. The liver extended from the fifth space to the level of the umbilicus. A moderate quantity of fluid was detected in the peritoneal cavity, and there was marked œdema of the lower extremities. Examination of the urine showed it to have a specific gravity of 1014, and to contain from ten to twenty per cent. of albumin, with many casts. Twenty to twenty-five ounces of urine were voided daily. She was under observation in the New York Hospital for two months, during which time the dyspnœa, vomiting, headache, and scanty urine were the prominent symptoms. During the last ten days of her sickness there was cough with moderate bloody expectoration.

At the autopsy it was noted that she was an extremely obese subject, the fat in the abdominal walls being 7 ctm. in thickness. Many old pleuritic adhesions were found, and also a moderate increase in the pericardial fluid. The heart was considerably hypertrophied, but predominantly dilated. All the cavities were distended with post-mortem clots; all the valves were normal; the muscular substance was pale, but fairly firm. The coronary arteries and the aorta were slightly atheromatous. There was a thin thrombus, 1 ctm. in diameter, at the junction of the transverse and descending portions of the arch of the aorta. There were no ante-mortem thrombi in the heart itself. In the left lung ante-mortem thrombi were found in many of the larger branches of the pulmonary artery in both lobes. Many of these thrombi nearly occluded the vessels, but there were no infarctions except two small ones in the anterior border of the base,  $1\frac{1}{2}$  ctm. in diameter. In the right lung there were large thrombi in the main subdivisions of the pulmonary artery, and multiple small infarctions scattered through the upper and lower lobes. The largest, which was in the posterior part of the lower lobe, measured 4 ctm. in diameter. The lungs were generally congested and œdematous. In the common iliac and femoral veins were large thrombi apparently completely occluding the vessels. The kidneys showed advanced chronic diffuse

nephritis. It was quite possible that some of the infarctions came from emboli in the femoral vessels.

#### TYPHUS OR TYPHOID FEVER?

DR. BIGGS then presented specimens from a case seen first at the Reception Hospital and then at the Riverside Hospital. The patient was an Austrian, twenty-one years of age, who when admitted to the Reception Hospital had a temperature of  $105^{\circ}$ , with a moderately profuse eruption, which was regarded as that of typhus fever. He said he had been sick for three days. The patient was under observation for eighteen days, and the history was furnished by Dr. S. D. Hubbard, of the Riverside Hospital. The temperature for the first three days was between  $105^{\circ}$  and  $106^{\circ}$ , and during the following eleven days it ranged between  $106^{\circ}$  and  $103^{\circ}$ , the average being  $105^{\circ}$ . During the last four days it fell gradually from  $103^{\circ}$  to  $100^{\circ}$ , the average being  $102^{\circ}$ . His pulse for the corresponding periods was 120 to 124, then 100, then 80, and during the last few days, 124. The respirations varied between 26 and 36 during the entire time. Low, muttering delirium was noted on the sixth day of the disease, and was frequently present throughout the course of the disease, especially at night. The eruption was at first macular, but by the ninth day it became petechial. The countenance was dull and dusky, and the eyes were congested. The spleen was enlarged throughout the course of the disease. There were signs of obstruction of the dorsalis pedis artery two days before death.

At the autopsy it was noted that he was extremely emaciated, and that rigor mortis was well marked. The toes of the left foot were of a pinkish-red color owing to the obstruction of the artery. The serous membranes were all normal. The heart was distended with post-mortem clots. Attached to the inner surface of the lower half of the anterior wall of the left ventricle were many firm grayish ante-mortem clots, forming a mass about the size of a hen's egg. The ventricular wall corresponding to the attachment of these thrombi was only 1 ctm. in thickness, while at the base it was 2 ctm. thick. There seemed to be no explanation for these variations in thickness of the wall. The muscular substance was pale and moderately soft. The valves were all normal. No ante-mortem clots were found in the heart except in the left ventricle. The coronary arteries and aorta were very

slightly atheromatous. The lungs showed marked bronchitis but no thrombi or infarctions. The spleen was about four times its normal size, was of a dark-red color, and contained an infarction in the posterior portion, 4 ctm. in diameter, and two others in the anterior portion, somewhat smaller. The mesenteric glands were distinctly enlarged, measuring 1 to  $1\frac{1}{2}$  ctm. in diameter. The kidneys were excessively anæmic, and their parenchyma degenerated. In the left one was an infarction 4 ctm. in diameter. The liver was soft and pale. The mucous membrane of the whole ileum was moderately congested; Peyer's patches were unusually distinct, with a finely granular surface; some of them were slightly elevated and presented a few points of superficial ulceration, 2 to 3 mm. in diameter. The colon appeared to be normal. The brain showed marked atrophy of the convolutions with corresponding increase of the fluid in the pia.

The cause of death in this case appeared to be a cardiac thrombus with resulting multiple embolism occurring as a complication of some acute infectious disease. It was diagnosed clinically as typhus fever. The speaker said he thought the lesions pointed rather to typhoid than to typhus. The points in favor of typhoid were, first, the distinct enlargement of the mesenteric glands, which were not usually enlarged in typhus fever, and secondly, the distinct but slight lesion of Peyer's patches. There was no characteristic lesion of these patches, unless possibly the "shaven beard" appearance. Regarding the case as one of typhoid fever, it would be in the fourth week at least. The most reliable statistics placed the average duration of typhoid fever at twenty-four to twenty-eight days. In the fourth week, therefore, if the disease had progressed favorably, one would expect to find varying degrees of healing of the ulcerated Peyer's patches, and this seemed to be the condition in the specimens presented.

In this connection the speaker presented specimens from a recognized case of typhoid fever on the twenty-third day of the attack. The patient was a male, thirty-five years of age, in whom the disease ran a perfectly characteristic course for four weeks. The temperature remained nearly at the normal for about three days; then it rose again and continued high for twenty-three days, when he died of multiple pulmonary thrombi with infarctions. The autopsy in this case showed the heart considerably dilated and flabby without thrombi. There was an infarction in the anterior border of the right base, about one inch in

diameter, and four smaller ones in the left lower lobe. In addition there were many thrombi of the size of a split pea in both lungs at the bifurcation of the pulmonary arteries. They encroached only moderately on the lumen of the vessels. The spleen was twice the normal size, of a deep-red color, and moderately soft. The mesenteric glands were moderately enlarged. The kidneys showed parenchymatous degeneration. The liver was soft and pale. The intestines were heavily coated with mucus, but appeared otherwise normal except in the lower portion of the ileum where the Peyer's patches were slightly pigmented and presented a finely granular surface. The colon showed a few pigmented points, probably healed ulcerations, and a few superficial ulcerations not yet healed.

The pathological conditions in these two cases were very similar, yet the clinical history of the first case resembled that of typhus, while that of the second case corresponded with that of typhoid fever. In the first case death occurred about the beginning of the fourth week, or possibly later; in the second case death occurred at the beginning of the fourth week of the relapse. In both the intestines gave evidence of a lesion of Peyer's patches undergoing repair, and also of a slight enlargement of the mesenteric glands and decided enlargement of the spleen. The cultures from the spleen in the first case developed nothing which could be regarded as at all characteristic of typhoid; in the second case cultures were not made.

DR. J. E. WEEKS presented a

#### SARCOMA OF THE FACE.

The tumor was removed from the face of a man sixty-five years of age. About thirty years ago he had noticed a small tumor of the side of the nose, which after some years presented a small ulceration. This tumor was removed in 1870. About twelve years later the cicatrix became congested and the tumor recurred. The patient then came under the care of Dr. Derby, who found the growth on the left side of the bridge of the nose, near the inner canthus, adherent to the subjacent tissue, and separated from the canthus by a half-inch strip of healthy skin. It was nodular, irregular, and elevated, and on removal exposed a bleeding surface. There was no enlargement of the pre-auricular gland on that side. The tumor was referred to the speaker for

examination. The posterior surface of the tumor was covered with degenerated epithelium, and consisted chiefly of irregularly cylindrical and club-shaped hyaline, homogeneous masses, which took eosin stain like connective tissue. There were small collections of epithelial cells between the hyaline cylinders, which penetrated to a considerable depth. Lymphoid cells were quite numerous, and in some places were seen in the centre of the hyaline masses. There was a scanty connective-tissue framework in nearly all parts of the growth. The blood-vessels were not found in the centres of the hyaline masses, but were quite plentiful on the periphery. The walls of the arteries in the centre of the hyaline masses were thickened and degenerated, and there were extensive extravasations of red corpuscles and blood pigment throughout the growth, indicating profound vascular changes. This form of tumor, the speaker said, had been classified as sarcoma. Billroth described a similar tumor in 1866, which he termed a "cylindroma." This variety of new growth was most frequently met with on the face, although it had been found at the margin of the anus. Out of twenty-four tumors collected, fourteen were from the mesoblastic elements, and ten from epiblastic elements. The hyaline masses probably resulted from the degeneration of mesoblastic tissue. The term cylindroma should only be employed as an adjective.

DR. R. H. SAYRE presented

#### AN ASTRAGALUS FROM A CASE OF CLUB-FOOT.

The specimen had been removed by operation from a patient, twenty-six years of age, with very exaggerated talipes varo-equinus. After extensive incision of the soft parts on the inner side of the foot, he was unable, after reducing the varus, to get rid of the equinus; hence the astragalus was enucleated. This bone presented a very different appearance from the normal astragalus. Its superior articular surface was not more than one third the usual size; the body of the bone was almost completely absent; the neck was much twisted inward, and the surface which should articulate with the scaphoid was much altered. The astragalus was bent downward on itself at a very sharp angle. The larger part of it was entirely free from articulation with the bones of the leg. After removal of the astragalus it was found that the os calcis was bent inwards at an angle of about  $45^{\circ}$ , so that



it was necessary to remove a V-shaped section from the outside of the os calcis in order to efface this curve. In these old club-feet it was usual to find more or less distortion of the bones. This was about the first astragalus that he had felt compelled to remove in an adult in order to reduce the deformity, but the great alteration in the bone seemed to fully justify this procedure. No more convincing proof could be given of the importance of overcoming the deformity in club-foot while the bones were still flexible.

DR. J. S. THACHER presented specimens from a case of

#### ABSCESS OF THE LIVER.

The man was operated upon six years ago in Egypt for abscess of the liver following an attack of diarrhœa. After wearing a drainage tube for ten months he recovered completely, and, according to his statement, remained well for five years. He entered the hospital last fall complaining of diarrhœa and some abdominal pain. There were a few streaks of blood in the fæces, and he had also the symptoms and urinary signs of nephritis. The liver showed a distinct enlargement and increased hardness. He left the hospital after a few weeks, and did not return until ten days ago. When readmitted the left lobe of the liver was found extremely prominent—a large, irregular mass projecting in the epigastrium. The right lobe of the liver was less prominent and softer, but was not easily palpated on account of ascites. He had been twice tapped for ascites. He was tapped again in the hospital, and the fluid on examination showed a few “budding cells.” At the autopsy it was found that the part of the liver which had formed the tumor was not that which was most diseased; it was waxy and hypertrophied. The right lobe of the liver was deeply excavated by an enormous abscess. The spleen and kidneys also showed waxy degeneration. The fact that he had been operated upon before for abscess of the liver, and that there had been no elevation of temperature in spite of the large abscesses, were the most interesting features.

DR. F. FERGUSON presented the brain from a case of

#### CEREBRO-SPINAL MENINGITIS.

It was removed from a man, thirty-four years of age, who was admitted to the New York Hospital on February 5, 1894. He

was found unconscious in the street, and was brought to the hospital in an ambulance. On admission he was so extremely drowsy that it was impossible to get from him a satisfactory history. He stated that for two weeks past he had suffered from headache and general pains, and that the illness began with chills, vomiting, fever, and cough. He also seemed to have some pain in his chest. The expectoration was blood-stained, and, according to his statement, had been so for two days. The slightest touch appeared to cause him the greatest pain. The temperature was  $102.4^{\circ}$  F., respirations 36, and pulse 92. Physical examination disclosed a soft systolic murmur over the heart apex, but otherwise the thoracic examination was negative. His pulse was slow, regular, and of good tension, with corresponding heart action. Examination of liver, spleen, and abdomen was negative. He was anæmic but well nourished. His urine had a specific gravity of 1022; it contained no albumen or sugar, and microscopical examination was negative. The pupils were contracted. On the day of admission he had a convulsion at 4 P.M., and at this time eighteen ounces of urine were drawn by catheter. He was restless and noisy all night. The following day he complained of headache. The head was shaved and an ice-cape applied continuously. The attending physician, Dr. G. L. Peabody, made a diagnosis of meningitis. He was treated with large doses of sodium iodide. The temperature remained at  $102^{\circ}$  while the pulse varied from 92 to 102, and the respirations from 28 to 40. On February 7th his temperature fell one degree in the morning, but rose in the evening to  $104^{\circ}$ , the pulse being 100 and the respirations 32 per minute. He was so noisy and restless that night that morphine was given, and on the following day he was still restless and was tearing the clothing, although unconscious. At 5 P.M. his temperature was  $103.8^{\circ}$ , pulse 106, respirations 28, and shortly after 8 o'clock he died.

At the autopsy, both the right and left ventricles were found slightly dilated, and the cardiac muscle was anæmic. The lungs were congested and contained numerous punctate hemorrhages in the most dependent parts. With the exception of the spleen, which was rather large and soft, the thoracic and abdominal organs presented nothing of special interest. On removing the calvarium the dura mater was found congested and firmly adherent to the skull over the left cribriform plate. While the meningitis in this location appeared



older, extension upward through the cribriform bone and dura could not be recognized. The pia mater everywhere contained pus and lymph, which, however, were more abundant over the vertex of both hemispheres and over the posterior surface of the cord in the lumbar region. The fourth ventricle also contained pus. On microscopical examination of the brain, the pia mater everywhere was found to be the seat of intense inflammation, with great hyperæmia and numerous punctate hemorrhages. On following the vessels through the cortex they were found to be the seat of innumerable small round cells, some of them apparently in the walls of the vessels, and some in the perivascular spaces. Adjacent to the dura, the cortex of the brain in places was infiltrated with an unusual number of small round cells, especially at the base of the left frontal lobe, where, over an area of nearly two centimetres in diameter, the entire cortex of the brain was infiltrated with pus. Over this area the dura mater was also extensively involved. Collections of small round cells were also found in limited areas along its external surface. Examination of the cribriform plate and the ethmoidal sinuses failed to show any lesion beyond intense hyperæmia. Bacteriological examination of sections revealed numerous diplococci, identical with the *micrococcus pneumoniae crouposa*. The speaker exhibited culture tubes, showing the characteristic development of these organisms, and also microscopical slides. He stated that pure cultures of this organism had been taken from several parts of the brain and spinal cord. In the vast majority of cases of cerebro-spinal meningitis examined by him during the past three years, this micro-organism had been found.

DR. V. P. GIBNEY presented a specimen illustrating the

#### ACETABULAR FORM OF HIP DISEASE.

The specimen was taken from a boy who was eight years of age at the time he was first admitted to the hospital, on January 9, 1889. He had already been treated for hip disease three years, and had worn a protection splint for one year. On admission, there was an immense abscess on the outer aspect of the thigh. The inguinal glands were much enlarged. There was a range of motion of  $35^{\circ}$  or  $40^{\circ}$ . Two days later the abscess was incised under ether, and on January 26th another sac was incised. In June, 1890, the sinuses, three in number, were still dischar-

ging. They were curetted under cocaine, and this was repeated on January 6, 1891. He was discharged from the hospital shortly afterwards. At this time the sinuses were discharging very slightly, the limb was in good position, and he was still wearing a brace. On January 29th, of the same year, he was re-admitted with the sinuses discharging very freely. Shortly after this an abscess was opened, and from this time until October the sinuses were curetted several times. He was etherized, and the sinuses on the inner and upper third of the thigh were found to communicate with a sinus in the inguinal region above Poupart's ligament. Tents were drawn through and through. There was no question then about the acetabulum being perforated. Up to April, 1893, these sinuses had variable discharges, and were occasionally curetted. The boy spent that summer in the country, and on his return in the fall the discharge from the sinuses was very slight. Early in December, 1893, one sinus remaining above Poupart's ligament was curetted, and the ilium found necrotic. A large drainage tube was inserted. The sinus was scraped thoroughly and a shell of bone removed. The operation was followed by high fever and much pain, and a few days later an abscess formed at the back of the ilium. The boy died of tubercular pneumonia.

The autopsy was made by Dr. H. S. Stearns on January 24, 1894. The base of the left lung was found to be full of tubercular nodules the size of a pea. The apex was œdematous, the remaining portion consolidated. The whole lower half showed a fairly intense pleurisy with a fibrinous deposit and two ounces of pus. The left lung showed a few recent adhesions behind a large tubercular cavity in the lower part of the lung, with trabeculæ running through and through, and also three or four tubercular deposits at the apex just undergoing softening. The kidneys were slightly enlarged, nodular on the surface, with non-adherent capsules, and markings indistinct. The stomach and intestine were normal. The spleen was decidedly enlarged and contained nodular tubercles. The liver was very much enlarged, weighing  $4\frac{3}{4}$  pounds, and was lardaceous. The peritoneal cavity contained three or four ounces of pus. The specimen itself showed no disease in the head, neck, or shaft. At the time of section, the trochanter itself presented a normal appearance, but the acetabulum was broken down throughout the upper portion, and there was a large hole into the pelvis.

*Stated Meeting, February 28, 1894.*

GEORGE C. FREEBORN, M.D., PRESIDENT.

THE PRESIDENT presented a series of specimens of

PAPILLOMATA AND PAPILLOMATOUS CYSTS OF THE OVARY.

CASE I.—*Papilloma of the Right Ovary ; Papillomatous Cyst of the Left Ovary.*

These specimens were removed, by laparotomy, by Dr. George M. Tuttle. The patient, aged thirty, was the mother of two children. Four months previous to the operation she first noticed a tumor in the left iliac region. Since then she has lost flesh and strength and has had considerable pain. At the time of the operation the abdominal cavity contained a small amount of clear serum. A large papillomatous cyst adherent to the omentum was found on the left side, and a papillary mass on the right.

The left ovary consists of an irregular-shaped, lobulated mass of papillary growths, measuring  $8\frac{1}{2}$  cms. in its long and 6 cms. in its short diameter. The slightly enlarged tube is attached to the mass by an elongated and thickened mesosalpinx. Its fimbriated end is occluded and rounded off. Section through the mass shows an irregular-shaped ovary, containing a few follicular cysts, embedded in the papillary mass.

The left ovary is reduced to a thin-walled, oval-shaped cyst, to the upper surface of which is attached a slightly enlarged tube. Growing from the upper and anterior portion of the external surface of the cyst and extending to the tube is a lobulated papillary mass, measuring  $9\frac{1}{2}$  cms. in length, 7 cms. in thickness, and projecting  $5\frac{1}{2}$  cms. above the surface. On the posterior surface of the cyst there are also a few small isolated papillary masses. The tube is slightly enlarged, its fimbriated end is occluded, and its surface covered with adhesions. Section shows a small portion of ovarian tissue, containing a few small cysts, forming the upper portion of the cyst wall, the remainder being thin fibrous tissue. The internal surface of the cyst is studded with papillary outgrowths varying in size from that of a pin head to that of a cherry. From the surface of the remains of the ovary there is an outgrowth of papilloma. At the external end of the remains of the ovary there is a second cyst, small in size, and containing a small papillary mass.

CASE II.—*Papilloma and Papillomatous Cyst of the Right Ovary ; Papilloma of the Left Ovary.*

These specimens were removed from a patient who was admitted to the service of Dr. C. Cleveland in the Woman's Hospital in the State of New York. She was unmarried and thirty years of age. Ten months previous to the operation she noticed an enlargement of the abdomen. Six months later three gallons of a light brown fluid were removed from the peritoneal cavity by tapping. At the time of the operation, six months later, two and a half gallons of the same kind of fluid were removed.

The right ovary shows an oval-shaped cyst, 7 by 5 cms., from the end of which projects an irregular-shaped, lobulated papillary mass, measuring 10 by 8 cms. Longitudinal section through the cyst and papillary mass shows that the cyst grew from the end of the ovary. It is thin-walled and has a lobulated papillary mass, 4 by  $2\frac{1}{2}$  cms. in size, growing from the internal surface of the cyst wall, and appears to be continuous with a similar mass attached to the outer surface of the cyst.

The remains of the ovary is of a triangular shape, measuring  $1\frac{1}{2}$  by  $4\frac{1}{2}$  cms., and is surrounded by a mass of papillary growth. The papillary mass is divided into three lobes, each of which is attached to the ovary by a distinct pedicle.

The left ovary is an irregular-shaped papillary mass, measuring 11 by  $8\frac{1}{2}$  cms. Section through the mass shows its central portion to be composed of an oval-shaped ovary, measuring 5 by 3 cms. The ovary contains several small cysts. Along the upper surface of the ovary there is attached a slightly enlarged Fallopian tube. The papillary mass is composed of three lobes which are attached to the surface of the ovary by distinct pedicles. Two being rather broad, the third, which is attached to the outer end, being long and slender.

CASE III.—*Papilloma of the Right Ovary ; Papilloma of the Omentum.*

These specimens were sent to me for examination by Dr. George M. Tuttle, who had removed them from a woman, aged fifty-two, married, mother of four children. The menopause occurred six years previous to the operation. Eight months previous to the operation she noticed an enlargement of the abdomen and œdema of the lower extremities. At the time of the operation a tumor of the abdominal cavity was found extending above the umbilicus. The inguinal lymph nodes were enlarged. Upon

opening into the peritoneal cavity a moderate amount of clear serum was found. On the right side a tumor growing from the ovary and extending out between the folds of the broad ligament was found. The omentum was adherent to its surface. The left ovary and tube were normal.

The omentum shows a papillary mass the size of a cherry attached to its lower border. Microscopic examination shows small papillary masses distributed very generally over the surface of the trabeculæ.

CASE IV.—*Cystic Papilloma of the Omentum Secondary to Papilloma of the Ovaries.*

The specimen was removed from a married woman, aged thirty, who was admitted to the service of Dr. C. Cleveland in the Woman's Hospital in the State of New York. She gave a history of gradual enlargement of the abdomen extending over a period of six months previous to her admission. During the six weeks previous to the operation there was a rapid accumulation of ascitic fluid with a loss of flesh and strength. Laparotomy was performed by Dr. Cleveland, who found both the ovaries and tubes converted into papillary masses and so firmly adherent to the pelvic tissues that they could not be removed. The omentum was found adherent to the uterus and intestines and filled with a mass of small cysts. The portion of the omentum presented was removed and the abdomen closed. The patient died, twelve hours after the operation, of exhaustion. No autopsy was permitted.

The specimen consists of a rectangular piece of the omentum, measuring  $12\frac{1}{2}$  by 11 cms., with an average thickness of 20 mm. The entire specimen consists of a mass of small cysts, thin-walled and containing papillary masses and a clear thin fluid.

CASE V.—*Papilloma and Papillary Cyst of the Ovary.*

This specimen was removed, by laparotomy, from a woman, aged twenty-six, who was admitted to the service of Dr. Outerbridge, in the Woman's Hospital. The history of the case is as follows: Married; has no children. Two years previous to her admission she had sharp pain in the left iliac region; one year later she noticed a tumor, and she began to "bloat" and œdema of the lower extremities appeared.

The specimen, which was removed by laparotomy, consists of four thin-walled cysts grouped around a central dense mass, from which there springs an irregular-shaped papillary growth. Section



shows all the cysts tending to the oval shape, the largest of which measures 10 by 8 cms.; the next in size, 9 by 6 cms.; the next, 8 by  $5\frac{1}{2}$  cms.; the smallest, 6 by  $4\frac{1}{2}$  cms. The interiors of all the cysts are more or less studded with papillary outgrowths. The central dense mass is the remains of the ovary, from the surface of which is growing the papillary mass.

CASE VI.—*Papillary Cyst of the Ovary.*

This specimen was removed by Dr. F. H. Markoe and sent to me for examination. The specimen is a multilocular cyst, measuring 10 by 12 cms. The Fallopian tube is attached to the surface of the cyst. Section shows three principal cysts within thin walls, the internal surfaces of all being studded with various-sized papillary outgrowths.

DR. E. K. DUNHAM presented

A CYLINDROMA OF THE SCALP.

The tumor was about  $1\frac{1}{4}$  inches in diameter,  $\frac{1}{2}$  inch thick, and lenticular in shape, and was situated in the anterior portion of the scalp in the median line. It had been growing slowly for two years, and was regarded as a recurrence in the cicatrix left after the excision of an old wen. After the removal of this tumor the patient, a man of seventy years, lived for one year without any sign of recurrence, and then died of apoplexy.

Examination of the first sections had led Dr. Dunham to think it was an epithelioma, but careful examination of thinner sections showed it was a sarcoma, and one in which certain elements had undergone hyaline degeneration. Micro-chemical tests were made for hyaline material, but with negative result. The specimens exhibited under the microscope showed the alveoli filled with small round cells, and among these cells, small hyaline bodies. The speaker said it had occurred to him that these hyaline bodies were degenerated capillary vessels, but he was doubtful about this, because he had been unable to find any transition forms, and, moreover, there was hyaline degeneration, not only of the blood-vessels, but of the fibrous tissue, as the capsule exhibited the same degeneration.

DR. E. HODENPYL agreed to the diagnosis, but objected strongly to the use of the term cylindroma, which was vague and unsatisfactory.

DR. W. P. NORTHRUP presented photographs of three cases of

## CONGENITAL OR INFANTILE MYXCEDEMA.

These cases were being treated by the internal administration of the glycerine extract of the yearling sheep's thyroid. It had been found that a daily dose of three drops kept the temperature at about the desired point— $100^{\circ}$  F. The photographs showed very well the peculiar physical characteristics of these children.

DR. E. HODENPYL presented specimens from a case of

## CARCINOMA OF THE LIVER, STOMACH, AND LUNGS.

The case was remarkable on account of the enormous extent of the lesion, the very short duration of the disease, and the very moderate discomfort which it caused. The patient was a man, forty-six years of age, whose family history and previous history were negative. His last illness dated back to the latter part of October, 1893, when he began to experience a heavy sensation in the upper part of the abdomen and distress after eating. There was no vomiting, pyrosis, or eructation of gas. He gradually developed dyspnœa. When admitted to hospital, on January 31st, he was moderately emaciated and pale; the urine was normal. Physical examination showed the heart and lungs to be normal. Hepatic dulness began in the fifth space, and ended two inches below the free border of the ribs. The spleen was not enlarged. There was a good deal of constipation, but no vomiting, while he was in the hospital. He died comatose.

At the autopsy the left lung was found studded with a moderate number of yellowish-gray nodules. The right lung was considerably compressed; the liver was enlarged; the gall-bladder normal, and the cystic duct pervious. Extending along the entire length of the lesser curvature of the stomach, but not involving either the cardiac or pyloric orifices, was a large carcinomatous nodule the size of a small orange, and, adjoining it, a thickened portion of new growth and a large area of ulceration. The liver, together with the pancreas and stomach, weighed fourteen pounds.

## HYPERTROPHY OF THE PROSTATE; CARCINOMA OF THE BLADDER; HYDRONEPHROSIS; CHRONIC DIFFUSE NEPHRITIS.

DR. HODENPYL also presented specimens removed from a man, sixty-six years of age, who was admitted to the hospital on February 20th. It was impossible to obtain an accurate history from



him. He had been quite intemperate. He said that about two months before admission he became very obstinately constipated, and there was inability to urinate except in small drops. On admission, there was œdema of the legs, scrotum, and penis; his temperature was  $100^{\circ}$ , respirations 20. The urine was very bloody, alkaline, had a specific gravity of 1013, and contained seventy-five per cent. of albumin by volume. The daily quantity of urine voided for three successive days was six, two, and sixteen ounces, respectively. The urine was drawn by catheter while he was in the hospital, and was always very bloody. Physical examinations showed fluid in the abdominal and pleural cavities.

The chief point of interest in the case was found on the peritoneal surface just adjoining the right kidney—a series of intercommunicating sacs, many of them ending in blind pouches with thickened edges. Some of them were ulcerated. The ureter passed over this curious mass into the kidney. The speaker said he was unable to explain this condition except on the supposition that it was either a secondary growth or foetal remain. He would report upon it more fully at another time.

DR. T. S. SOUTHWORTH presented the lungs from the twin of the child whose lungs were presented by him recently. This child was fifteen months old, and weighed at birth four and a half pounds. Last May it had severe pertussis, and in the third week of the disease a broncho-pneumonia for six weeks. After this it gained slowly up to five weeks ago. Two weeks ago it developed fever, and fine crackling râles over the chest, anteriorly and posteriorly, with a temperature of  $100^{\circ}$  to  $103^{\circ}$ . It died suddenly.

At the autopsy the left lung showed adhesions posteriorly, and the right lung general firm adhesions, evidently older than in the other lung. The bronchial glands were markedly enlarged on the right side, but were not cheesy. There were consolidation and a fairly uniform white mottling of the right lower, right middle, and posterior half of the right upper lobes. There was also consolidation of the posterior half of the lower lobe of the left lung, with the same mottling. The spleen was much enlarged and congested. The mesenteric glands were not enlarged. This child was also supposed to be tubercular, but the lung showed a form of broncho-pneumonia not infrequently mistaken for tuberculosis. It was worthy of note that, notwithstanding the history, the bronchial glands were not cheesy.

Dr. J. M. BYRON reported a case of

ABSCCESS OF THE LIVER MISTAKEN FOR EMPYEMA.

The case occurred in Bellevue Hospital, and the diagnosis of empyema was made because exploratory puncture and the physical signs pointed to this condition. An opening was made on the right side at the usual point, and some pus withdrawn. The man died, and on autopsy absolutely nothing was found in the pleural cavities except a very slight pleuritis on the right side. In the posterior and upper part of the right kidney, however, was a very large abscess, which communicated with the operation wound. The diaphragm was intact. There was no ulceration in the intestine, or anything to account for this abscess in the liver.

Dr. HENRY POWER reported a case of

EXOPTHALMIC GOITRE TREATED WITH THE THYROID EXTRACT.

The only other case of the kind, so far as he knew, had been reported by Dr. Owen in the *British Medical Journal*. His own patient was a Swedish domestic, twenty-four years old, in whom rather large doses of the thyroid extract were used—seven to nine drops, three times a day. At first there was general improvement and shrinkage of the tumor to half its former size, but this was followed by a return of the former condition, and by a deterioration of her general health. The dose was quickly reduced and finally stopped, but three weeks after the last dose the patient became comatose and died.

At the autopsy, which was made twenty-four hours later, it was noted that there was marked emaciation, together with enlargement of the thyroid. The heart, lungs, and kidneys were normal; the uterus was small and of the infantile type; the spleen was not enlarged. The thymus was present: it measured  $3\frac{1}{2} \times \frac{3}{4} \times \frac{1}{2}$  inches, and weighed 13 gm. after partial hardening. The thyroid showed great symmetrical enlargement, and weighed 40 gm. after partial hardening. The brain could not be examined. Microscopical examination of the thyroid showed the stroma normal and the epithelium greatly proliferated. Some of the alveoli were lined with cuboidal epithelium, others with cylindrical cells, while others again had no regular lining. The stroma of the thymus appeared to be normal; the cells stained with difficulty. The liver contained some fat. The kidneys were lobulated and

contained hyaline casts. They also showed degeneration and congestion.

DR. HENRY P. LOOMIS presented a specimen of

#### CANCER OF THE ŒSOPHAGUS.

The patient was a man, fifty-three years of age, who had an excellent family history, and also a good previous history, except that he said he had had a slight bronchitis for many years. His last illness began last August with anorexia, uneasiness in the epigastrium, and slight vomiting. The pain was most intense in the left hypochondriac region and near the xyphoid cartilage. For two months he could only take solid food with difficulty, and then, finding that solid food caused pain, he swallowed nothing but oatmeal and milk. On admission he was very greatly emaciated, had a haggard, apathetic expression, and vomited curdled milk. Physical examination of the abdomen showed an area of flatness about four inches in diameter, with its centre one inch below the xyphoid cartilage.

The autopsy was made thirty-six hours after death. No pathological lesion was found in any of the organs or tissues until the stomach and œsophagus were opened. A firm, dense, cancerous infiltration was found in the wall of the lower portion of the œsophagus and the œsophageal end of the stomach. About three inches of their walls were infiltrated with a dense mass, which narrowed the opening of the œsophagus into the stomach to such a degree that it was with difficulty that an ordinary penholder could be introduced down the œsophagus. There was no ulceration or involvement of the rest of the stomach wall. The infiltration presented the ordinary appearance of a scirrhus cancer. There was marked atrophy of the intestines. The patient apparently died of inanition due to mechanical obstruction, which interfered with the introduction of food into the stomach.

Cancer, the speaker said, was the most frequent form of tumor met with in the œsophagus, and statistics showed that the seat of the tumor in this case was that most frequently observed. The extreme narrowing of the tube was due partly to the infiltration, and partly to the contraction of the newly formed connective-tissue resulting from the irritation of the new growth. The dense infiltration no doubt produced the feeling of obstruction which was constantly referred to by the patient during life. The ab-

sence of ulceration was unusual. The œsophagus and stomach at the site of the cancer were tightly bound to the cellular tissue behind them. The tumor was diagnosticated during life and an operation advised. If this advice had been followed, no doubt the patient's life would have been prolonged considerably by the establishment of a gastric fistula.

#### PRIMARY TUMOR OF THE HEART WALL.

DR. H. P. LOOMIS presented a specimen of tumor of the heart wall which had caused sudden death. The man, thirty-five years of age, was found dead on the floor of his bedroom by the servant who came to awaken him in the morning. A friend, in whose room he had spent the previous evening, said that he left him about eleven o'clock, apparently as well as ever; but on being questioned further, recalled the fact that his friend had complained of some distress over his heart two or three times while they were together. The man must have died immediately on reaching his bedroom, for he was found stretched on the floor with his hat grasped in his hand. Careful inquiry was made of his friends, who stated that he had not been sick for years, nor had he even complained of feeling ill during the month preceding his death. He had attended regularly to business. He was a moderate drinker, but at times indulged to excess. No syphilitic history could be obtained.

The autopsy was made twelve hours after the body was found. He was a robust man, of excellent physique, and weighed one hundred and seventy-five pounds. There were no marks of external injury. The liver and kidneys showed extreme congestion, with moderate cirrhosis of the liver. A most careful examination of all the other organs, including the brain, failed to reveal the slightest abnormality until the heart was opened. Here a lesion was found—one of the rarest met with in post-mortem examinations. A circumscribed tumor of a yellowish-white color, firm in consistence, non-capsulated, was found embedded in the anterior wall of the left ventricle. Its dimensions were  $\frac{3}{4} \times 1\frac{1}{4} \times 2$  inches, and it involved over one third of the wall of the left ventricle. Neither the endocardium nor the pericardium over the tumor was involved. The heart weighed sixteen ounces. The left ventricle was very much dilated, and, as a result, there was marked insufficiency of the mitral valve. There was no hypertrophy of the

heart wall. The valves were normal, as was also the endocardium. A large soft, red, non-adherent blood-clot filled the cavity of the left ventricle. The right ventricle was free from blood, slightly dilated, and its wall was somewhat thickened. The coronary arteries were normal. The thoracic and abdominal aorta showed the lesion of an extensive aortitis, involving the greater portion of its inner coat. A section cut so as to include the heart wall and the greater portion of the tumor showed on microscopical examination that it was composed of small round cells, with here and there near the centre cheesy spots. In a few places giant-cells could be seen, as also amorphous basement substance between the round cells. In places young connective-tissue formations could be seen. The tumor was moderately supplied with small blood-vessels in its outer portion. It was not encapsulated. The round cells could be seen running between the muscle fibres in its external zone. Sections of the tumor were stained for tubercle bacilli with negative result. Gram's method failed to reveal the presence of any micro-organisms. From a careful examination of all portions of the tumor an unqualified diagnosis of gumma was made. This diagnosis was later confirmed by Dr. T. M. Prudden, who examined the specimen.

Primary tumors of the heart are exceedingly rare, although secondary tumors are not of infrequent occurrence, especially secondary 'carcinomata. Virchow in his *Archives*, vol. xv., describes the following tumors as being found in the heart wall : sarcomata, fibromata, lipomata, myxomata, and syphilomata. The last he says is among the rarest tumors met with. This is the second case of gumma of the heart which the speaker had met with in the last ten years, the other case being that of a prostitute, thirty years of age, who died of lobar pneumonia. The present case is also of interest because it was no doubt the indirect cause of the man's sudden death, which must be explained by the sudden over-distension and inability of the left ventricle to empty itself. Nearly one half the muscle fibre of the left ventricle was destroyed by the new growth.

Syphilis is known to affect the heart in two ways, viz.: (1) By the formation of a gumma, as in this case ; and (2) by setting up an interstitial myocarditis, the localized and extensive fibrous indurations in the muscle tissue being generally associated with a fatty degeneration of the muscle fibre. Cheesy masses are often found in these indurated areas, and the question has been raised



as to whether they may not be gummata in process of absorption. Lancereaux mentions two cases of waxy degeneration of the heart wall which he refers to as one of the manifestations of tertiary syphilis, but his observations have not been confirmed by other observers. No doubt gumma in various stages of development and metamorphosis is the most characteristic lesion of tertiary syphilis affecting the heart.

On behalf of DR. LE FEVRE, Dr. Loomis also presented a specimen of

#### CARCINOMA OF THE WALL OF THE STOMACH.

The specimen was removed from a married woman, thirty-one years of age, whose family history was good. She had enjoyed good health up to six months after her last confinement, or up to one year and nine months ago. She was slightly anæmic at this time, but quickly recovered. Five months later she came under Dr. Le Fevre's care, complaining of very severe pain in the stomach, accompanied by vomiting. Her weight had been reduced in a short time from one hundred and forty pounds to one hundred and fifteen. She improved temporarily under tonic treatment. Four months later there was extreme pain in the epigastrium, radiating through to the angle of the left scapula. With this there was incessant vomiting and also some fever. Six days later, the thickened wall of the stomach was mapped out by physical examination. She then passed from under his observation. She was reported to have suffered constantly. She never vomited blood.

At the autopsy, the body was found to be extremely emaciated; the lungs, liver, and intestines were normal; the uterus and ovaries were also normal. The stomach was adherent to the spleen, and these were adherent to the upper portion of the intestine. There was very extensive cancerous infiltration of the wall of the stomach, beginning at the pylorus, and involving by far the greater portion of the stomach. Incidentally, the heart was of interest, for while presenting no organic disease it was as small as the heart of a child.

Dr. BYRON said he had examined some of the sections of the tumor of the heart wall, and the structure was not at all characteristic of gumma of the heart. The round-cell infiltration was very extensive and uniform, and all of the cells seemed to be nearly of the same age without any discernible degeneration in

any portion of the tumor. The giant-cells, which reacted to eosin almost like muscular tissue, seemed to him to be simply muscle fibres in which the inflammation had given rise to the proliferation of the muscle nuclei.

Dr. LOOMIS said that as the case had been variously diagnosed as interstitial myocarditis, abscess of the heart, sarcoma of the heart, etc., he would be very glad to have the specimen examined by the Committee on Microscopy. He did not think, however, that it was possible that the giant-cells were really muscular nuclei.

The specimen was referred to the Committee on Microscopy.

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*Stated Meeting, March 14, 1894.*

GEORGE C. FREEBORN, M.D., PRESIDENT.

DR. W. G. LE BOUTILLIER presented specimens from a case of

TUBERCULOSIS OF THE BLADDER AND KIDNEYS.

They were removed from a man, thirty-five years of age, who had had one testicle removed ten years before, probably for tubercular disease. There was no history of the beginning of the tuberculosis. At the time of death there was tuberculosis of the lungs, of one hip-joint, and of several vertebræ. The pelvis of each kidney contained a mass of cheesy material, and several cheesy masses were also in the cortex. The right ureter was much dilated, but there was no evidence of destruction. While the patient was under observation some of the urine was injected into a guinea-pig to confirm, if possible, the tubercular nature of the disease. The guinea-pig was found dead about eight weeks later, and examination showed cheesy masses at the site of the inoculation and also general peritonitis and tubercular lesions of the lungs and spleen. Tubercle bacilli were found in the patient's urine.

DR. GEORGE P. BIGGS presented portions of organs showing the characteristic lesions of

BOVINE TUBERCULOSIS.

The specimens were brought to him by a veterinarian, who stated that large numbers of tubercles were found in the lungs, heart, mesenteric glands, mediastinal glands, peritoneum—in



fact, in all of the organs. The animal was a Jersey cow, and its milk had been used up to about two weeks before the animal was killed. It had been slightly ill for a few weeks, and had had a slight dry cough, which, however, two veterinarians had said was of no significance. The animal also had a good deal of difficulty in breathing, and examination showed large numbers of dry râles. The specimens presented comprised portions of the liver, spleen, lungs, mesenteric glands, and udder. In the section from the udder there were no distinct giant-cells, but rather epithelioid tubercles. The tendency to caseation was very marked. The speaker said these caseous masses usually became encysted, and after considerable time underwent calcification. Unfortunately, no examination was made of the milk. Among the characteristic features of tuberculosis might be mentioned (1) a series of out-growths from the serous membranes often attached together like bunches of grapes; (2) the tendency to calcification; and (3) the proneness to the formation of fibrous tissue.

Dr. LE BOUTILLIER asked for further information regarding the diagnosis of bovine tuberculosis. He understood that recently the diagnosis had been made by injections of tuberculin.

Dr. J. S. ELY said that for some months past he had been examining material sent him by the cattle inspectors of the State Board of Health. They had been using tuberculin quite extensively and with good results. Last November he went to Barren Island to see some condemned animals slaughtered. Out of the seventy-two cattle, sixty-eight had given the characteristic reaction with tuberculin, and, after slaughtering, just sixty-eight of the animals were found to be tubercular. The normal temperature of cattle is higher than that of man—about  $102^{\circ}$ . After the injection of the tuberculin the temperature rises within seven hours to  $104^{\circ}$  or  $105^{\circ}$ , and in the course of four or five hours, more falls to the normal. This is considered the typical reaction. The herd referred to was a valuable one, being worth about thirty thousand dollars, and consequently the owner had employed several veterinarians to examine the cattle. One prominent veterinarian said they were not tubercular, and another coincided in this opinion, yet many of the animals, when slaughtered, showed lesions nearly as pronounced as those seen in the specimens just presented.

Dr. T. M. PRUDDEN said that a farmer came to see him recently in regard to a herd of Jersey cattle which he suspected had

become infected with tuberculosis. Only about thirty cattle seemed to be sick, and as these thirty gave the characteristic reaction with tuberculin, they were killed and found to be tubercular. The owner then determined to sacrifice an apparently healthy animal to determine still more definitely the value of this test. An animal which did not give the reaction with tuberculin was slaughtered, and was found to be free from tuberculosis. The power of this breed of cattle to produce milk and butter seems to be at the expense of their resisting powers to tuberculosis. The very long series of experiments of Dr. Ernst, published before the Association of American Physicians in Washington some years ago, and a similar series in Germany, showed that it was not at all necessary to have any involvement of the udder to have tubercle bacilli in the milk.

DR. WARREN COLEMAN presented a specimen of

#### OSTEOSIS OF THE SKIN OF THE FOOT.

In March, 1892, Dr. Sherwell presented a case at the Dermatological Society for diagnosis.\* A girl, six years of age, born in Brooklyn of American parents, had a lesion in the sole of the left foot, which the mother had first noticed about two and a half years previously. It was a thickening of the skin and subcutaneous tissue, occupying about one third of the plantar surface of the foot, chiefly under the os calcis and a little to the outer side. A year and a half after the lesion in the sole appeared, the fourth toe became involved and gradually increased in size.

The skin of the entire toe takes part in the process though the lesion is most marked in the distal phalanx. The enlargement is symmetrical, and the diameter of the toe is 1 cm.

It is stated that there has been little increase in the amount of skin involved from the time the lesion was first noticed until the operation in December, 1892—a period of three years, though from the subsequent history and from the gradual increase in the size of the toe, I am inclined to think it was from lack of observation on the part of the mother. Certain changes, however, have taken place: the skin has grown harder, and nodosities and irregular thickenings have appeared on its surface. The skin of the toe also has become indurated.

At the time, Dr. Sherwell described the condition as follows:

\* *Journ. of Cut. and Gen.-Urin. Dis.*, March, 1892, p. 119.

"The lesion now consists of a plaque of cartilaginous hardness, studded here and there with tubercular nodosities, about six in number, the whole occupying about one third of the external plantar surface of the left foot.

"The skin and subcutaneous cellular tissue was all involved in the process, still the plaque can be moved relatively freely over the subjacent tissue. The epithelial tissues, while somewhat thick and horny, present no other unusual features. There are few subjective symptoms while the foot is at rest, but on account of the hardness it is difficult to walk upon it, seeming to act as a foreign body without the irritation the latter would cause. The little patient always walks on the ball of that foot. The lesion on the fourth toe is of the same relatively painless character, and is curiously clubbed on top, and the peculiar cartilage-like feel is also present. On no other part of the limbs or body is anything that is abnormal. The child is of healthy parents as far as can be ascertained, and is a healthy child. I cannot class the trouble as scleroderma or carcinoma *en cuirasse*, and present her for diagnosis."

An operation was performed in December, 1892, when the plaque and the fourth toe were removed. It was noticed in cutting out the plaque that the knife met with more resistance beneath it than normal subcutaneous tissue would have offered even in the sole of the foot.

The toe and the plaque were put into alcohol, and have been well hardened. The plaque now measures 1 cm. through its thickest portion.

On the night of June 7, 1893, Dr. Sherwell kindly looked up the case with me, and it was found that the growth has recurred and is advancing. The scar is adherent to the bone, and in front of the scar the skin and subcutaneous tissue are infiltrated with a substance which from its hardness and resistance seems to be cartilage. It is of new formation, having appeared since the time of the operation.

In May last, Dr. Piffard brought a portion of the growth which he had decalcified in a 2 per cent. mixture of nitric acid and 95 per cent. alcohol to the Loomis Laboratory, and asked to have sections made for him. The sections, as the microscopic report will show in detail, contain cancellous bone. He suggested the term *osteosis*, as the lesion is a general infiltration of the skin with bone rather than a distinct tumor-formation.

The body of the plaque, its advancing edge, and the toe have

been examined. The toe was cut at two different levels—through the articular cartilage, and through the body of the phalanx—with the view of determining, if possible, the origin of the process.

All of the pieces were decalcified in the above mixture, and it is found that the acid has interfered to a certain extent with the staining properties of the cells.

The statements made in the following report have been drawn from a study of twenty different sections.

*Microscopic Examination.—Sections through the Body of the Plaque.*

The sections contain cancellous bone which runs close up to the epidermis. The spicules vary in size and shape, and are irregularly distributed throughout the tissues. Many of them connect with others. The interspaces are filled chiefly with fat-cells, blood-vessels, and a loosely woven connective tissue. Small nerves may be seen scattered here and there. Sweat glands of normal appearance lie in the deeper parts of the sections. Their ducts lead up between the spicules of bone, and pass through the epidermis in the usual corkscrew-like passages. The spicules are most abundant in the sections from this part of the growth, which would account in part for its greater hardness, but they are also smaller. The variations in the size and the irregularity in the shape of the spicules appear to result chiefly from absorption. Some of the spicules have irregular openings in them from a similar cause. Frequently distinct rows of cells may be seen along the sides of the spicules, but, as a rule, they do not lie under a definite membrane. Large multi-nucleated cells are sometimes associated with them, especially when the spicules are thinnest. Mingled with the fat-cells, generally in the interspaces, there is a tissue of marrow-like structure. It consists of numerous unnucleated cells, a little larger than lymph cells, the nucleus occupying nearly all the protoplasm. The large multi-nucleated cells, above mentioned, occur with these, and fine connective-tissue fibres run among them all in different directions. The spicules of bone vary in structure. Some consist merely of a homogeneous ground-substance with rounded or flattened cells scattered through it; in others the cells are branched and arranged in irregular rows, or are disposed in concentric rows around a central opening. No distinct fibrillation could be made out in any of them. As a rule, the spicules are composed of

irregular lamellæ, between which are branching lacunæ filled with bone corpuscles. Small blood-vessels are included in the larger masses of bone, and in rare instances the lamellæ are arranged concentrically around them, but there is a lack of regularity, characteristic of the Haversian-system, in the disposition of the bone corpuscles.

The connective tissue, immediately under the epidermis is very dense—in fact, is almost tendinous in structure.

*Edge of the Plaque.*—This portion of the specimen is not so thick, and contains less bone than the part just described. It contains also masses of cartilage. Some of the cartilage cells are branched, as in foetal cartilage. Though the features presented by these sections are for the most part such as have been described, other points of interest may be noticed. There is reason to believe that a transformation of fibrous tissue into cartilage is taking place. Cells immediately adjacent to cartilaginous masses may be seen to increase greatly in number, to arrange themselves between bundles of dense fibrous tissue, and to become flattened out. They are of the same size, shape, and appearance as the outermost cells of the cartilage, and merge imperceptibly into them. These cells correspond very closely with cells in a like situation in an ossifying tibia from a six months' foetus. There is an entire absence of rows of osteoblasts around these centres. Most of the cartilage masses seem to be extending in this manner. This transformation was suggested in certain sections from the older part of the growth, but in them, as a rule, the ossification of cartilage already formed was the most prominent feature. The method by which the cartilage extends would explain the absence of a periosteal layer. But without a periosteum it is not so clear why the osteoblasts arrange themselves in definite rows along the sides of the calcareous cartilages.

*The Ossification.*—In all essential details ossification is proceeding regularly. I shall consider it in the three stages described by Schäfer. Many of the spicules have ossified only so far as the deposition of calcareous granules in the cartilaginous matrix without any noticeable change in the appearance of the cells. As ossification proceeds, the cells swell up, but do not, as a rule, arrange themselves in any characteristic manner. Rows of osteoblasts develop along the sides of the cartilaginous masses, with or without the occurrence of the large multi-nucleated cells—or osteoclasts. Then the irruption commences. The irregular



openings found in many of the spicules may be explained in this way, for they contain both kinds of cells. Ranvier doubts whether osteoclasts are much concerned in absorption, but, be this as it may, it is undoubtedly true of this specimen that where these large cells are most numerous, the spicules present the greatest irregularity in shape, and are thinnest. Their presence in certain of the spicules would also suggest this function, having burrowed there from the side. Only in exceptional instances do the osteoblasts lie under a definite membrane. They may be seen at times to become included between fibrous layers to form bone corpuscles. Where ossification is complete, both osteoblasts and osteoclasts have disappeared, and the bone has an irregularly lamellar or concentric arrangement. The lacunæ are branched, and filled with bone cells.

There are several areas in which typical ossification occurs, with marked swelling of the cells, their arrangement in definite rows, irregular absorption of the cartilaginous matrix, and the entrance of blood-vessels into the spaces thus formed.

*The Toe.—Section through Body of Phalanx.* There is a notable absence of new bone in the derma and subdermic tissues. An excessive development of very dense, almost tendinous, fibrous tissue is the principal cause of increase in the diameter of the toe. All the normal elements of the skin are present. The central canal of the bone contains spicules of irregular shape and arrangement, with fat-cells and blood-vessels filling the interspaces. The number of bone corpuscles is noticeably small, and there are no osteoblasts along the sides of the spicules. In the cartilaginous ring which surrounds these, and to which they are attached, ossification proceeds regularly. But there is no periosteum even here, and at irregular intervals around its periphery the transformation of fibrous tissue into cartilage, with a consequent extension of the ring, is more evident than in sections from the edge of the plaque. Where the cells are distinctly cartilage cells, and even where they have begun to swell and arrange themselves in a definite manner for ossification to take place, fibrous bands may be seen running among them. Instead, however, of the cells arranging themselves in rows at right angles to the advancing line of ossification, they became grouped, apparently from repeated subdivision—the number of cells in each group being a multiple of two. At this point absorption begins, with the subsequent building up of the spicules that are left. The

cells in the outer part of the cartilage, where it is extending, are flattened, and some of them are slightly branched. At one point in the ring, cartilage is absent, its place being taken by fibrous tissue not yet transformed.

Concerning the sections through the *articular cartilage*, there is little to be added. However, it is worthy of note that a true epidermic formation, consisting of all the layers quite perfectly developed, runs in crescentic form one fourth the way around the bone, and almost immediately adjacent to it. I examined a number of sections and the block from which they were cut to make sure that this did not result from an accidental infolding of the skin. Its presence in this situation I am entirely unable to interpret.

The order of development in the lesion would appear to be the following : primarily a hyperplastic formation of very dense connective tissue, its transformation into cartilage, the extension of the cartilage thus formed by a further transformation of the adjacent fibrous tissue, and the subsequent ossification of the cartilage. This transformation of fibrous tissue into cartilage cannot be regarded as a pure metaplasia because of the marked cell-proliferation accompanying it.

There is no evidence in sections of the plaque to warrant the belief that the lesion took origin from the periosteum or pre-existing cartilage, and that furnished by sections of the toe may be disregarded. The chief change in the toe, the principal cause of its increase in size, is an excessive development of fibrous tissue. Moreover, this fibrous tissue is most abundant immediately under the epidermis, and not around the cartilaginous ring of the phalanx. The extension of this ring seems to be simply a part of the general process, and not the starting-point of it. Furthermore, if the process had begun by an extension of the pre-existing cartilage, it is reasonable to suppose that the plaque would have been attached to the underlying bones. But such was not the case. It could be "moved relatively freely over the subjacent tissue." While it is true that bone is present throughout the entire depth of the sections, ossification has been completed chiefly in the parts just beneath the epidermis. And as it is probable that the ossification began in the cartilage first formed, I must think that the transformation first occurred in the dermis itself, or immediately below it.

Metaplasias, both physiologic and pathologic, are of common



occurrence. Ziegler says "that of the several tissues belonging to the connective-tissue group, one may pass into another by simple modifications, partly affecting the cellular elements, partly the ground-substance." But these metaplasias "are confined to the connective tissues—fibrous tissue, cartilage, bone, mucous tissue, and adipose tissue are, so to speak, potentially convertible." As instances of the transformation of fibrous tissue into cartilage, I may cite the sesamoid fibro-cartilages which form in tendons, and the connective-tissue tumors in which cartilage develops. Arterial sclerosis sometimes results in the formation of cartilaginous patches in the walls of the vessels. In the disease called *myositis ossificans* we have an instance of the transformation of fibrous tissue into bone, for muscle is not capable of undergoing this metaplasia. It takes place in the inter- and intramuscular septa.

The proneness of hyaline cartilage to ossify is too well known to need more than mention. Ziegler goes so far as to say that it is "at best a transitory structure in man."

The most rational explanation of the etiology in this case seems to be that it is due to a congenital predisposition to hyperplasia and metaplasia of the connective tissue in the derma and subdermic structures. Syphilis may be excluded, and it cannot be ascribed to any special irritation resulting in an inflammatory condition. The lesion, as the history shows, is notably free from any signs of inflammation. It is true that the child goes bare-foot in warm weather, but if this alone were the cause, we should expect to find a similar development in the other foot, and also that the lesion would be of commoner occurrence.

When bones develop in abnormal situations in the body they are usually the result of long-continued irritation leading to inflammation. The *American Text-Book of Surgery* states, however, that "a few cases have been observed of an early commencing, slowly advancing general muscle inflammation, starting usually in the neck and back, in which after a time the atrophied parts become the seat of bone formation, *myositis ossificans*, the cause of which is as yet undetermined."

In riders', or exercise, bones we have an example of bone formation, the result of long-continued pressure, though the ossification may be of syphilitic origin at times. Hod-carriers also are known to develop new bony formations under the skin of the shoulder where the weight of the hod falls.

Bone may form under the conjunctiva or in the corpus vitreum as a result of inflammation.

The so-called bones of the pleura and dura mater are, according to Foster's *Dictionary*, densely fibrous structures which have become calcified.

Herniæ sometimes develop a cartilaginous or bony sac.

In conclusion I wish to express my thanks to Dr. Sherwell for permitting me to make use of the case.

OCCLUSION OF THE ILEO-CÆCAL VALVE BY A PLUG OF MUCUS  
EXTREME INTERSTITIAL EMPHYSEMA OF THE LUNGS.

DR. JAMES EWING presented the lungs, ileum, and colon which had been removed from a child who died fourteen hours after birth. The presentation was L. O. A. and the labor natural. The second stage lasted one hour. There was considerable asphyxia of the child at birth so that four mouth-to-mouth insufflations were made, after which it seemed to breathe naturally. It was not long, however, before the breathing again became bad, and the child cyanotic, and these symptoms persisted until death. One hour after death the autopsy was made. The abdominal wall was tense and protuberant. The liver which had been pushed upward descended as the abdomen was opened. The lower six inches of the ileum were found collapsed. Above this point the intestine and stomach were excessively distended with gas. The lower two feet of the ileum contained a tough cord of mucus which protruded through the ileo-cæcal valve and completely occluded it. Six inches above the valve it formed a plug which was not easily detached. The lungs showed great compression, especially in the lower lobes, and while they were largely atalectatic they were not consolidated. Scattered over both lungs were many prominent vesicles showing extreme interstitial emphysema. Two or three large vesicles covered two thirds of the internal surface of the right lung. The cerebral sinuses were intensely engorged. There was a large blood clot in the stomach. Blood serum was oozing from the nostrils.

The speaker said he had been unable to find in the literature any reference to such a peculiar mucus cord as the one found in the ileum. The enormous quantity of air in the stomach and intestine was accounted for by the insufflations, the air having expanded somewhat probably under the heat of the body. The

distension interfered with respiration and proved the immediate cause of death in the infant already asphyxiated. It had been stated by Delafield that distension of the stomach with aërated mucus might become a serious complication in bronchitis in infants. Possibly the emphysema was caused by the forcible insufflation, but this hardly seemed sufficient to explain it. Most writers on the diseases of children stated that the chief cause of interstitial emphysema was violent expiratory efforts with obstruction to the expired air. While there was no consolidation the compression of the lung from the abdominal distension produced atelectatic areas. The hemorrhages and venous congestions were due to the asphyxia, which was the manner of death.

Dr. PRUDDEN said he saw this mucus cord, which resembled a tape-worm in many respects, although any one would avoid confounding the two.

*Stated Meeting, March 28, 1894.*

REGINALD H. SAYRE, M.D., VICE-PRESIDENT.

Dr. GEORGE P. BIGGS presented a specimen showing

DIVERTICULA OF THE SIGMOID FLEXURE OF THE COLON.

It was removed from a woman, fifty-five years of age, who died of chronic tuberculosis, chronic diffuse nephritis, and cirrhosis of the liver. About two inches above the brim of the pelvis there was a hard mass in the posterior wall of the sigmoid flexure of the colon, and on cutting into this from the outer surface, a pocket was exposed which contained nearly one drachm of thick, yellowish pus. It measured 2 cm. x 1 cm., the longer measurement corresponding with the axis of the gut. The tissues around this were distinctly indurated, although there was no localized peritonitis, the inflammation being entirely in the adipose tissue surrounding the sigmoid flexure. After some difficulty, a small probe was passed through a small opening into the lumen of the gut. There were a number of other diverticula.

This condition of multiple diverticula in the colon, especially in the lower portion, would be found not to be uncommon, the speaker said, if careful search were made for it. These diverticula generally contained fæcal matter. He had never before seen

them inflamed as in this case, although there was no special reason why this should not occur.

Dr. JAMES EWING said that he had recently seen two cases of anæmic colitis with marked ulceration, in which all the normal diverticula of the sigmoid flexure for about one foot were much dilated, so that they were capable of holding two or three drachms of fluid. They were not, however, inflamed.

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*Stated Meeting, April 11, 1894.*

GEORGE C. FREEBORN, M.D., PRESIDENT.

Dr. H. P. LOOMIS presented specimens from a case of

CARBOLIC-ACID POISONING.

A man was taken suddenly ill on the street, and died before the ambulance reached him. The autopsy showed that death was due to carbolic-acid poisoning. The autopsy showed very well the extreme congestion and corrosion of the larynx and œsophagus. The tissues were very well preserved although they had been kept in a cool place for about one week without any special preservative fluid.

Dr. LOOMIS also presented a specimen showing

ABSCCESS OF THE BRAIN.

W. J., thirty-four years of age, was admitted to Bellevue Hospital in a somewhat stupid condition. He answered all questions in a loud voice. He had been complaining for two months previously of pain in the right side of the head and in the right ear, and there had been a discharge of pus from this ear for a short time, but it had ceased before his admission to the hospital. The day after admission he suddenly developed paralysis on the left side, more marked in the arm. After a few hours the stupor became profound, and he died the following day. At no time was his temperature over 99°. A diagnosis was not made during life.

On removing the brain there was a peculiar yellowish appearance, but no evidence of an abscess until the brain was cut open.

The brain, with the exception of an abscess in the temporal lobe on the right side, was normal, as were also the other organs of the body. The abscess in the temporal lobe was marked by a cavity about one and a half inches in diameter, and this cavity was filled with thick, greenish pus. The bones of the ear were cut open, and in the mastoid cells and the petrous portion of the temporal bone collections of pus were found. There was no meningitis—in other words, no extension by continuity. The sinus was thoroughly examined, but no thrombus was found. Cultures were made only from the abscess, and these showed the presence of the staphylococcus albus, the cladotrix, the bacillus liquefaciens, and a diplococcus resembling Fränkel's, but its exact character had not been positively determined.

PERFORATION OF THE ŒSOPHAGUS OF A "SWORD  
SWALLOWER."

DR. LOOMIS also exhibited the diaphragm, œsophagus, and stomach from a man, thirty-nine years of age, who had died within half an hour after admission to Bellevue Hospital. At the autopsy, on removing the sternum, the left pleural cavity was found to contain a large amount of dark liquid with little oil globules floating on top, and masses of what appeared to be fecal matter floating in it. The lung was compressed against the spinal column, and the heart was pushed over to the middle line. There was an odor of acetic and butyric acids in the liquid. Thinking that possibly the intestine had ruptured through the diaphragm, and had become strangulated, it was next dissected out, and was found to be free throughout its entire extent. The diaphragm was then examined, and found intact. The lung was next carefully removed, and was found to be completely atelectatic. After careful search it was found that the little finger could be passed into the left side of the œsophagus a little above the diaphragm—in other words, there had been a perforation of the œsophagus, leaving a clean-cut, linear opening, two ctm. in length, extending down to the œsophageal opening in the diaphragm. There was no evidence of ulceration or infiltration. On examining the cardiac end of the stomach, radiating lines were found around the œsophageal opening, which seemed to have resulted from injury. All three inner coats were gone, and the peritoneum laid bare. No other part of the stomach or œsoph-

agus was injured in any way, and careful search throughout the entire alimentary tract failed to reveal the presence of any sharp-pointed or sharp-edged body; in fact, no foreign body of any description was found. Subsequent inquiry showed that this man had been a sword swallower, and had been performing almost up to the day of his death. Probably the injury had been inflicted by a sword.

DR. WILLIAM H. PARK presented specimens showing

THE RELATION OF THE PSEUDO- AND THE NON-VIRULENT DIPH-  
THERIA BACILLUS TO THE VIRULENT DIPHATHERIA BACILLUS.

Before exhibiting the stained preparations and the cultures of these bacilli, I will touch upon their characteristics.

THE PSEUDO-DIPHATHERIA BACILLI.

In 1888 Hofmann published the results of the bacteriological examinations of a number of diseased and healthy throats, which for a time threw doubt on the specific character of the Loeffler diphtheria bacillus. Further research has largely dispelled the confusion which his discoveries seemed to make.

Hofman's results were similar to those of Loeffler, in that he found the virulent bacillus in all of 8 cases of true diphtheria, but in further search he was surprised to find in the throats of 26 out of 45 persons, none of whom were suffering from diphtheria, a bacillus which very closely resembled the Loeffler bacillus. The bacilli from a number of these healthy throats were obtained in pure culture and inoculated into animals. The majority had no virulence whatever. The bacilli from the different cases varied somewhat in their characteristics. Some in appearance, manner of staining, and growth on media seemed identical with the Loeffler bacillus, while others presented slight but constant differences. Between the extremes were many gradations.

Those bacilli which did not possess all the characteristics of the virulent bacillus differed in the following respects. They were shorter, thicker, and more uniform in size. On agar, they grew in whiter and thicker colonies, whose circumference was more circular and less notched. They also grew at a lower temperature than the virulent bacilli (20 to 22 degrees C.).

Hofmann was undecided whether all of these bacilli were really



Loeffler diphtheria bacilli, which had lost their virulence, or whether they were a different species of bacteria and of a saprophytic nature. He was also undecided whether, even among these non-virulent bacilli, there might not be included different species.

Roux and Yersin found in a hospital for children in Paris, where cases of diphtheria occurred from time to time, that 15 out of 45 children contained in their healthy throats non-virulent bacilli resembling the Loeffler bacillus. In a French village, where no diphtheria had been present for a long time, they made cultures from the healthy throats of 59 children living in a school. In 26 of these non-virulent bacilli were found.

In an examination of the throats of 10 attendants in a diphtheria hospital non-virulent bacilli were found once. Thus, in 115 healthy throats the non-virulent bacilli were found 42 times. In all of these throats the bacilli were present in very small numbers.

The bacilli found, when studied in pure culture, differed somewhat from each other. The majority were identical in all their characteristics with the Loeffler bacillus, except as to their lack of virulence. The minority resembled those described by Hofmann. They made the important observation that the non-virulent bacilli which they tested, when grown in broth, caused the same changes in the reaction as the virulent forms, namely, from alkaline to acid in 48 to 72 hours, and later, back again to alkaline in the course of some weeks. These changes were found to occur even more rapidly in the cultures of the non-virulent than of the virulent bacilli. Roux and Yersin regarded the occasional slight differences in growth, shape, and staining as too slight and inconstant to distinguish the virulent from the non-virulent bacilli. Animal experiments alone sufficed to determine the question of virulence, and they regarded as arbitrary a division founded on the reaction of the guinea-pig to inoculation; since they found bacilli from cases of diphtheria may possess every degree of virulence, from those which cause death within 24 hours to those which caused only a temporary œdema. With such variations it is a difficult matter to determine what should be the proper line of division between the virulent and the non-virulent bacilli.

To fully prove these bacilli belong to the same species, they



believe it is necessary to derive non-virulent bacilli from the virulent ones, and to give virulence to those entirely lacking it.

They found it was possible to produce an attenuation of the virulence of the bacilli in a number of ways ; the attempt to restore to bacilli the virulence which they had entirely lost was not so successful. They found it possible to greatly increase the virulence of bacilli by injecting them together with a virulent culture of the streptococcus of erysipelas ; but were unable, on the other hand, to give back virulence to those bacilli which had been completely robbed of their virulence by the above methods, or to those which had no virulence when obtained from the throat.

As additional proof of the identity of the virulent and non-virulent bacilli, they brought forward the fact that they found the latter more frequently in patients recently convalescent from true diphtheria than in those who had never had the disease, and that the bacilli which had artificially been deprived of their virulence, frequently were changed in other respects, so as to resemble in all ways the bacilli which were originally lacking in virulence. From their studies they concluded the non-virulent and bacilli were one and the same species of bacteria.

If we now turn to the work of Escherich, we find results which tend to show the virulent and some of the non-virulent bacilli are different species of bacteria.

He found the bacilli from every case of diphtheria examined to be fully virulent, and in a few cases, where he obtained characteristic bacilli from the healthy throats of persons exposed to diphtheria, he found them also to be virulent.

Escherich did indeed find in a moderate number of throats of persons not suffering from diphtheria a bacillus similar to those described by Hofmann. Thus, in Munich he found this non-virulent bacillus in 2 throats out of 70, and in Graz, in 11 out of 250, or 13 times in 320 cases. These bacilli, however, all possessed certain cultural and morphological characteristics which were sufficient to separate them from the virulent bacilli. They were, as in some described by Hofmann, plumper and shorter than the Loeffler bacilli and more uniform in size. He noticed two new points of difference which seemed to him important. The non-virulent or pseudo-diphtheria bacilli, when spread on a cover-glass, lie in parallel rows, while the virulent diphtheria bacilli lie at every angle and in the most varied positions. The second difference was still more marked. He found, as had all

others who had noticed this point, that the virulent bacilli in their growth in alkaline bouillon changed the reaction of the bouillon to acid in the course of 48 hours. The amount of acid formed differed in different cultures, and had no relation to the degree of virulence. He then noticed the pseudo-diphtheria bacilli always made the bouillon more alkaline instead of acid. Therefore, if at the end of 48 hours litmus was added to the different bouillon cultures, it turned red in the virulent ones and blue in the pseudo-diphtheritic non-virulent ones. It should be noticed this difference in reaction was not found by Roux and Yersin in the cultures of the non-virulent bacilli tested by them.

Escherich, in conclusion, states his position as follows :

"Since we have found constant cultural differences between the true and the pseudo-diphtheria bacilli, we can give the pseudo-diphtheria bacilli no diagnostic value."

If we review the remaining literature of this subject we find some investigators have been led by their results to adopt views similar to those of Roux and Yersin, others to those of Escherich, and still others have been forced to content themselves with the position of Hofmann, viz. : that we are not yet in a position to affirm whether all these bacilli are of one or of different species of bacteria.

The relationship between these bacilli has not only been to me a matter of great interest, but has also been one of great practical importance in the bacteriological examinations carried on in the laboratory of the Health Department for purposes of diagnosis.

In order to clear up, if possible, some of the questions connected with their classification, cultures were made upon blood serum from 330 healthy throats.

When any of the varieties of bacilli described above were discovered in the cultures, they were isolated, and, in the great majority of cases, tested as to their virulence on guinea-pigs. In this examination I had the help of Mr. Alfred Beebe. The results are given in the table below. The bacilli formed may be divided into three groups :

(1) Bacilli identical with the Loeffler diphtheria bacillus in growth, producing acid in bouillon, but having no virulence.

(2) Bacilli not having all the characteristics of the Loeffler bacillus in growth, producing alkali in bouillon, but having no virulence.

(3) Virulent Loeffler diphtheria bacilli, characteristic in growth, producing acid in bouillon.

TABLE

*Showing Results of Cultures Made from the Throats of Healthy Persons where there had been no History Obtained of Direct Contact with Diphtheria.*

From Where.	Total Cases.	Virulent Characteristic Diphtheria Bacilli.	Non-Virulent Characteristic Diphtheria Bacilli.	Non-Virulent Pseudo-Diph- theria Bacilli.
	Nos.			
New York Dispensary, by Dr. J. H. Huddleston.....	1 to 151	3	12	21
Northern Dispensary.....	152 to 163	—	—	—
Vanderbilt Clinic .....	164 to 189	—	2	2
Throughout the City.....	190 to 193	—	4	—
College of Physicians and Sur- geons—Students.....	194 to 242	—	2	3
New York F. H. Dispensary...	243 to 257	—	—	1
Orthopedic Hospital (through kindness of Dr. Chappell) :				
Female Ward.....	258 to 267 }	—	3	—
Male Ward.....	268 to 275 }			
New York Foundling Hospital, by Dr. Adams.....	276 to 330	5	1	—
Totals.....	330	8	24	27

In the above table we find 24 cases containing bacilli possessing all the characteristics of the Loeffler bacilli except that of virulence.

These bacilli were abundant in the primary cultures from 17 cases, and present in small numbers only in the cultures from 7.

They were on the average a little longer than the virulent bacilli from the cases of suspected diphtheria examined on the same days. In broth, the bacilli from 13 of the 24 cases grew

characteristically, while from 6 they caused a more or less dense cloudiness. It was found, however, that sometimes the virulent bacilli produced the same effect. In 5 cases the bacilli were not grown in broth. In all the cases in which broth cultures were made (19) the bacilli produced acid in their growth. When their acid-producing power was compared with that of an equal number of virulent cultures no marked difference could be noted. Some virulent bacilli were found to produce more acid than the non-virulent ones, while others produced less.

Upon blood serum, the bacilli grew in a manner characteristic of the Loeffler bacillus.

Upon agar, the bacilli from 11 cases grew as the virulent bacilli usually grow, while from 7 they grew in a less typical manner, but always in ways seen exceptionally in the virulent form. Guinea-pigs were inoculated with the bacilli from 15 cases. The lack of virulence in the bacilli from the remaining 9 cases was taken for granted from the close associations with the 15 tested.

For this purpose half-grown guinea-pigs were employed, and they were inoculated under the skin with  $\frac{1}{2}$  per cent. of their weight of a forty-eight-hour broth culture. In only one animal was there any appreciable reaction, and in this the local induration caused passed away within four days. A very slight degree of immunity was given to some of the pigs by the injection.

Two hundred and eighty of the 300 healthy persons from whose throats cultures were made, were children under twelve, while 50 were adults. In 24 of these, characteristic but non-virulent bacilli were found, and in only 9 of the 24 were there present noticeable pathological changes in the throat, such as enlarged tonsils. The bacilli persisted in four of the throats for four weeks, in one for three weeks, in three for two weeks, and in some of the others for shorter periods.

Column III. of the table shows that in 27 cases bacilli were found corresponding to those described by Hofmann and Escherich, and photographed by Koplik. These were smaller, shorter, thicker, and more uniform in size than the characteristic Loeffler bacilli, and always formed alkali in their growth in broth. On agar, they grew as the less characteristic varieties of the virulent bacilli. These bacilli were never virulent in animals. Guinea-pigs were inoculated with large amounts ( $\frac{1}{2}$  to 1 per cent. of their weight) of broth cultures of bacilli, obtained from 8 cases,

without showing any reaction. Cultures from a number of pseudo-diphtheria bacilli were carried through a number of generations without losing their characteristics, thus differing from the less characteristic acid-producing bacilli, which usually take on characteristic appearances when carried through a number of cultures.

As is shown in Column I. of the table, virulent diphtheria bacilli were found in 8 of the 330 cases. They were, in all probability, derived from mild cases of unrecognized diphtheria or from healthy children who were carrying the bacilli in their throats.

The conclusions I have drawn from the above studies and results obtained by others, are as follows :

All bacilli which are identical with the virulent Loeffler bacillus, morphologically, biologically, and in staining by reagents, should be classed with the diphtheria bacilli, whether they have much, little, or no virulence when tested in guinea-pigs. Bacilli which have entirely lost their virulence rarely, if ever, regain it. They probably are incapable of causing diphtheria, for the 24 cases in which they were found by us never developed any lesions, nor were they the origin of any case of diphtheria, so far as could be ascertained.

The name pseudo-diphtheria bacillus should be regarded as applying to those bacilli found in the throat, which, though resembling the diphtheria bacilli in many respects, yet differ constantly from them. These bacilli are rather short, and are more uniform in size and shape than the Loeffler bacillus. They stain, as a rule, equally throughout with the alkaline methyl blue solution, and produce alkali in their growth in bouillon. They are found in about one per cent. of the healthy throats in New York City, and seem to have no connection with diphtheria. They are never virulent.

Whether or not these pseudo-diphtheria bacilli are descendants of the virulent or non-virulent diphtheria bacilli is perhaps a question impossible to answer. They have, at present, certain well defined differences, which seem to be fixed. If you will look at the preparations under the microscope and at the cultures, you will see some of the characteristics presented by the bacilli which I have tried to describe to you.

Dr. H. D. CHAPIN asked in regard to examinations made several weeks after diphtheria.

Dr. PARK replied that if one followed them up for six weeks, they would be found to become less and less virulent while retaining their morphological appearances. He had not examined them after six weeks, but at this time they were apparently in about the same condition as in children in whom they had been found, and yet who had not developed any symptoms of diphtheria. The diagnosis was made chiefly on the stain, and the varied size and shape of the bacilli. These characters ranked next in diagnostic value to animal inoculations.

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*Stated Meeting, April 25, 1894.*

GEORGE C. FREEBORN, M.D., PRESIDENT.

DR. L. PEARCE BAILEY presented two specimens showing

ABNORMALITIES OF THE HEART.

The first one showed a fourth cusp to the aortic valve, and also some vegetations.

The second specimen was from a child who had died at birth from prolapse of the umbilical cord. A fibrous cord was found stretched across the aorta.

DR. GEORGE P. BIGGS presented specimens of

PRIMARY THROMBOSIS OF THE PULMONARY ARTERY.

A man, forty-seven years of age, had been brought to the New York Hospital in a bad condition, supposed to be suffering from pneumonia. No history was obtainable, and he died a few hours after admission, and without a careful record of the case having been made. At the autopsy, the first feature of interest observed was a great depression of the diaphragm, especially on the left side. On the right side it was at the fifth intercostal space, and on the left at the eighth intercostal space in the mammary line. It had pushed the spleen down until its upper border was on a level with the upper border of the left kidney. From the left pleural cavity 1200 cc. of a greenish serum had been collected, and this fluid had been found to contain fibrin in considerable quantity. The heart was so much displaced as to be almost en-



tirely to the right of the median line. The entire left lung, with the exception of the upper half of the upper lobe, was compressed by this fluid. The pleura was thickened and in the recent state was covered with fibrin. There was no evidence of a recent tubercular process in the lung itself, or in the pleura, except at one point—a small cheesy nodule in the parietal pleura. On scraping this, and staining it was found to contain a large number of tubercle bacilli.

The pleurisy, the speaker said, was probably of tubercular character, although the lesions of tuberculosis in the lung appeared to be all of a chronic character. The lung of the opposite side was poorly aerated. There were a number of adhesions at the apex, and in the upper half of the lobe were a number of pigmented fibrous cicatrices with small cheesy areas scattered through it. The pulmonary artery going to the lower lobe contained a large ante-mortem thrombus which was rather soft, but distinctly adherent to the vessel wall just beyond the origin of this branch from the main pulmonary artery of that side. The pulmonary tissue supplied by this vessel was very much congested, but was not œdematous, and there was consolidation. The thrombus seemed to have almost entirely occluded the lumen, but the usual effects of thrombosis were not very well marked. The heart was not nearly as much dilated as one would have expected with such extensive impairment of the lungs. The valves were normal, except for slight atheromatous patches near their bases on the left side. The coronary artery showed quite marked atheroma, especially near its origin. The muscle of the heart appeared to be perfectly normal. There were no other lesions of importance. The pericardium was not affected.

The speaker said that the first case of primary thrombosis which he had presented to the Society was thought to be very unusual, and some of the areas were thought to be pneumonia. He was sure that the case just presented was the fourth of the kind that he had seen this winter in which all possible sources of emboli had been sought for, yet none found. One of the other cases was quite similar to this one, the opposite pleural cavity being filled up with fluid. From the appearance of the organs in this case at the autopsy, it was not evident why it should have resulted in this way, except that the fluid had been allowed to remain so long that it had interfered with the action of the heart and the circulation in the opposite lung, thus causing death.

## SMALL ROUND-CELL SARCOMA OF THE OVARY.

THE PRESIDENT presented the half of a sarcomatous ovary which had been removed from a married woman, twenty-nine years of age, who had had one child, five years before. The tumor was supposed to have begun its growth shortly after the birth of the last child, four and a half years ago. It continued to grow until it measured 16 x 12 ctm., and weighed 1100 grm. If this history were reliable, it would seem to indicate a very slow growth for a small round-cell sarcoma.

THE PRESIDENT also presented a

SARCOMA OF THE OVARY ENGRAFTED ON AN ORDINARY  
CYST-ADENOMA.

The specimen had been removed from a woman, forty-five years of age, who had had five children, the last one fourteen years ago. This tumor had been first noticed nine years ago.

She had suffered from flooding at intervals up to one year ago. The tumor had remained about the same size until two months ago, when it had suddenly begun to grow very rapidly. At the time of the operation it measured 26 x 13 ctm. On close examination the central portion of the tumor was found to be made up of an ordinary cyst-adenoma, and small cysts filled with colloid material. Around the periphery was a sarcomatous mass—a mixture of small and large round-cell sarcoma, in which the large cells seemed to predominate and the stroma was rather scanty.

The speaker said he thought it had been an ordinary cyst-adenoma up to the time when the growth had become so rapid, and that at this time the sarcomatous degeneration had begun. Probably if the tumor had been left alone, the whole mass would have been converted into a sarcoma. This was one of the first well marked examples of sarcomatous degeneration that he had met with. He had examined upwards of 1000 ovaries, and out of this number had found only from five to seven sarcomata.

Dr. GEORGE P. BIGGS referred to one case of large cystic tumor of the ovary which he had seen, in which from the gross appearance it was thought to be multilocular cyst, but on microscopical examination it had been found to be distinctly made up of sarcomatous tissue, as if a change had begun to take place in it similar to that found in the specimen just presented.

Dr. FREEBORN said that on a previous occasion he had pre-

sented, in connection with a large series of ovarian tumors, one other specimen of sarcomatous degeneration. It was a multilocular cyst which had been reduced to three main cysts. On microscopical examination the septa of these cysts had proved to be sarcomatous.

Dr. S. T. ARMSTRONG said that the only case he had seen was in 1880 in the Woman's Hospital in St. Louis. The patient was an unmarried woman who had been previously confined in an insane asylum for acute mania for three years. No abnormal condition connected with the ovary had been found. She recovered from the mania, and finally entered the hospital in a wretched condition. She died shortly afterward.

Dr. THOMAS H. MANLEY said that solid tumors of the ovary were sometimes carried for years with but little inconvenience except that due to weight, and he was familiar with a few cases occurring in those past the menopause in which there was no question about a reduction having taken place in the size of the growth, and having been accompanied by an amelioration of the symptoms. He would ask whether this sarcomatous degeneration was to be regarded as a malignant change, or rather as a process whose object was to hasten resorption. He had seen a specimen exhibited recently at the Harlem Medical Association by Dr. McLean, in which a tumor had been honeycombed, leaving only a core.

The PRESIDENT said he did not think that any one had ever seen a carcinoma or adenoma in the abdomen disappear except by operation. It was well known that after the menopause solid tumors of the ovary and uterus did decrease in size, but he thought that in the vast majority of cases if these tumors could be examined and their structure determined, it would be found that they belonged to the fibroid order. He could not accept the theory that this sarcomatous change was a conservative effort of Nature, because in his case the history showed that two months ago there had been a rapid increase, and from both macroscopical and microscopical study, it appeared that this sarcomatous change had taken place at the time that the growth of the tumor had become so rapid. The tumor referred to by Dr. Manley was a pure cystic sarcoma which had probably started as a solid sarcoma. It had overgrown itself, so to speak, and hence necrosis had taken place in the central portion. This was not the condition in his specimen.

*Stated Meeting, May 9, 1894.*

GEORGE C. FREEBORN, M.D., PRESIDENT.

DR. THOMAS H. MANLEY presented

A LACERATED SPLEEN.

It had been removed from a young sailor who had fallen from a mast a distance of twenty feet, and striking against a rail, had sustained an injury in the region of the spleen. There was no disturbance of the sensorium, but there was profound and persistent shock, and he was in this condition when first seen by the speaker in consultation with his colleague, Dr. Charles B. White. There was no visible injury to the abdominal wall, and no distinct dulness on the injured side. There had been slight retching, but no vomiting except of a little mucus. The symptoms pointed to internal hemorrhage, or to perforation of the intestine. The only pain complained of was localized below the left nipple. Assuming that there might have been a perforation of the intestine, laparotomy was resorted to. The peritoneal cavity was found to be filled with blood which was escaping freely from the spleen. A portion of the border of this organ had been torn nearly off. The lacerated fragment was quickly ligated, and removed, but the man died on the operating table.

The speaker said that he did not think it was possible in the living subject to produce a laceration of the spleen by a blow or fall unless this violence was sufficient to produce disorganization of the overlying muscular tissues, which was not the case in this instance. His theory was that as the man was only about twenty years of age, and the bones were not yet fully ossified, the spleen had been caught by the movable thorax and crowded up against the spine. He would like the opinions of the members on this point.

Dr. T. M. PRUDDEN said he had seen several cases in which there had been laceration of the liver without injury to the abdominal wall.

The PRESIDENT said that within the past eighteen months several cases of extensive rupture of the liver had been presented to the Society, and in these there had been no evidence of injury to the abdominal walls.

DR. THOMAS S. SOUTHWORTH presented a specimen of

CRANIO-TABES.

The calvarium was very thin, and showed the condition of cranio-tabes particularly well on the left parietal bone. The specimen had been taken from a child of about nine months, who had given every evidence of rachitis. It had been thought at one time that possibly hydrocephalus was developing, but the measurements of the head were found to be no greater than normal. At the autopsy no unusual quantity of fluid was found in the ventricles of the brain.

DR. SOUTHWORTH also presented a specimen from the same child showing

URIC-ACID INFARCTS OF THE KIDNEY.

He said it was not uncommon to find in the newly-born that the pyramids of the kidneys were filled with minute particles of uric acid or urates, but masses of the size shown in this specimen were certainly unusual. This condition raised the question of clinical interest—Were these masses dissolved and absorbed, or were they passed along the ureters? If the latter occurred, it would afford an explanation of much of the colic and persistent crying of young infants.

DR. O. C. LUDLOW said that his clinical experience had abundantly confirmed the truth of this suggestion about the causation of much of the colic in the newly born. It was not uncommon to see such a sediment on the diaper, or about the meatus urinarius, and under such circumstances it would be found that the administration of alkalies would quickly relieve the colic, and at the same time cause the disappearance of the sediment.

DR. R. C. MYLES presented the pterygoid process and posterior part of the antrum of Highmore, and the pterygoid muscles, which had been removed from a case of

SARCOMA OF THE ANTRUM OF HIGHMORE.

The patient was a man, thirty years of age, who had been referred to him by Dr. Wyeth for examination. A portion of tissue removed by the curette from the antrum was submitted to Dr. Prudden, who found it to be a large round-cell sarcoma. It was

growing very rapidly. All of the sarcoma, as well as the superior maxilla, were removed by Dr. Wyeth two months ago. The patient is doing well, and so far there has been no recurrence. At first, owing to the loss of the pterygoids, the mouth was drawn to one side, but practice had overcome this difficulty. These cases of malignant disease of the antrum were not usually diagnosticated until the disease was far advanced. There were ordinarily very few symptoms, and hence, at first, these cases were apt to be obscure. He thought if diagnosticated sufficiently early all of them would recover. He would therefore strongly advocate an exploratory operation for diagnostic purposes.

DR. MYLES also presented an

#### EXOSTOSIS AND ECCHONDROMA OF THE VOMER.

It had been situated between the perpendicular plate of the ethmoid and the vomer, just beneath the sphenoid bone. He had found that in nearly every instance the cartilage had extended up to, or very nearly up to, the sphenoid bone. The specimen was concave on one side.

DR. T. M. CHEESMAN exhibited

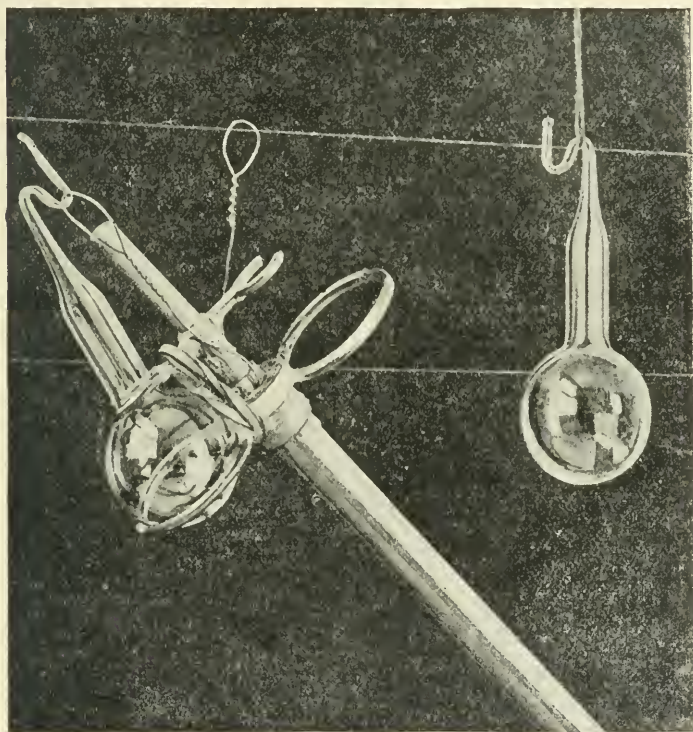
#### A WATER-SAMPLING APPARATUS.

The apparatus, he said, involved no new principle, but was an adaptation of a device described in Fluegge's *Micro-organismen*, and originated, he believed, with Pasteur. Its object was to collect a sample of water from a given level in a vacuum bulb, by breaking off the end of the capillary tube when the bulb had reached the desired level in the water. Glass bulbs, 2.5 ctm. in diameter, and having a neck 2 ctm. in length, are drawn out into capillary tubes, and these are given a double bend. The gaseous contents of the bulb are then driven out in the usual way by evaporating a few drops of water in them, and then sealing the ends. In such a bulb the surface or tap water could be easily collected by breaking off the end of the tube with the finger. The sample thus obtained should then be placed in a large, cotton-plugged sterilized tube, and carried in an ice-pail to the laboratory. The object of the apparatus exhibited was, however to facilitate obtaining samples at different depths, or from inaccessible places. It had been suggested by Dr. Prudden, and had



been elaborated by the combined talent of several others. Its utility had been fully demonstrated in actual practice.

The apparatus consists of a metal tube of small calibre, and about one metre in length, divided off into equal parts. To the lower end of this tube are soldered two rings for supporting two vacuum bulbs. Beneath these two rings are two broken rings arranged to slide on the end of the tube. They are held in place by a rubber strap or band.



In collecting samples, the capillary ends of the bulbs are broken off when they have been immersed respectively at the levels from which it is desired to take samples of the water. The breaking off of these ends is accomplished through the instrumentality of small copper wires attached to their bent ends, and actuated by the finger of the operator. Breakage is facilitated, and fracture at the desired point is insured, by making a cut previously in the glass with a file or diamond at the proper point.

## FORMALIN AND BACTERIAL GROWTH.

DR. CHEESMAN also exhibited specimens showing the effect of formalin in arresting the growth of bacteria, and its effect on gelatin already fluidified by bacterial products. Formalin, he said, was a forty per cent. solution of formaldehyd ( $\text{CH}_2\text{O}$ ), a gaseous body produced by subjecting methyl alcohol to oxidation. It is soluble in water in all proportions, and is placed on the market in a forty per cent. solution. As it is very inflammable, care must be taken about employing it near a light or fire, and it is important that the preparation should have been recently prepared, as it loses its properties by keeping.

Dr. Cheesman then exhibited the following specimens :

The first was a potato, which had been cut in half without anti-septic precautions, and one half smeared with the soil clinging to the outside of the potato, and the other half with a culture of *B. prodigiosus*. Both halves had been kept for fourteen days in an air-tight jar, charged with the vapor of formalin. No growth had developed.

The second specimen showed the effect of formalin vapor upon a culture of *B. mycoides* in gelatin, grown for three days at the temperature of an ordinary room before being subjected to the formalin vapor. The growth had been arrested, and the fluidified gelatin on the surface had become solid. The medium still remained clear, but had undergone a slight change in color.

The third specimen was a "roll-tube" of *B. subtilis*, one of the most actively fluidifying species. The growth had been arrested by the formalin vapor.

The fourth specimen was a water-plate upon which, after two days of growth, about 1 cc. of formalin had been placed, and the cover sealed on with paraffine. The growth had been completely arrested.

The speaker said that formalin had the peculiarity of rendering solid gelatin which had once been fluidified by bacterial products. So far as he knew, ordinary gelatin, as well as that which had been fluidified by bacteria, was thus rendered incapable of being liquefied by heat. It was claimed by those who had introduced formalin, that the microscopical appearances of the bacterial colonies were not affected by the formalin. If this were true, it would be useful for making microscopical "mounts" of colonies cut from gelatin plates. The cut section from the gelatin could

be placed on a slide, surrounded by gelatin, covered with glass, and placed in an atmosphere of formalin. It could be varnished to prevent drying.

The PRESIDENT remarked that he had seen a published statement by one experimenter to the effect that the heat from a Bunsen burner would char the gelatin which had been acted upon by formalin, but would not fluidify it.

DR. HENRY POWER presented microscopical sections of an

#### EPITHELIOMA OF THE HAND.

According to the clinical history, the patient, a man of seventy-five or eighty years, had had an epithelioma on the back of the hand for about eight years. He suddenly developed marked jaundice, emaciated rapidly, and died in eight weeks. At the autopsy, the organs were found to be normal, except the liver and gall duct. The latter was distended, and contained some gall-stones. There was a growth in the neighborhood of the common bile duct, which completely occluded it. It seemed to be composed of adenoma, some fibroma, and, in places, closely resembled in structure the epithelioma of the hand. The latter showed very large epithelial "pearls" and also some peculiar cells which gave the appearance of having a thick capsule.

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*Stated Meeting, May 23, 1894.*

GEORGE C. FREEBORN, M.D., PRESIDENT.

DR. EUGENE HODENPYL presented specimens from a case of

#### EXTENSIVE RUPTURE OF THE URINARY BLADDER.

They had been removed from a woman, sixty years of age, who stated that six days before her admission to the hospital she had lost power to move her legs or to urinate. She had received little or no treatment up to the time of her admission. She was then found to be somewhat apathetic; the abdomen was distended; there was complete paralysis of the lower extremities, and a small quantity of urine was escaping by drops from the bladder. The next morning she was noticed to be gradually failing in strength, and a few hours later she died.

At the autopsy the abdominal cavity was found distended with fluid which was slightly tinged with blood ; there was no evidence of peritonitis. At the fundus of the bladder was a linear rupture, almost two inches in length. The bladder was very large, and the mucous membrane was intensely congested. The other abdominal organs and the thoracic organs were normal. The dorsal portion of the spinal cord showed minute areas of softening, and the diagnosis of disseminated myelitis was afterwards confirmed by a microscopical examination.

It was quite remarkable that there had been so little discomfort and such slight inflammatory action notwithstanding the amount of urine in the abdominal cavity. It was unfortunate that a bacteriological examination had not been made to determine the presence or absence of bacteria in this fluid. The microscopical examination showed intense congestion of the bladder mucous membrane, but no inflammation. The rupture must have been due to over-distention.

#### PROSTATIC ABSCESS.

DR. GEORGE P. BIGGS presented a number of specimens of prostatic abscess, and made some remarks on this subject, based upon a study of the autopsy records of the New York Hospital for the past twenty-five years. In these records he had found ten cases of prostatic abscess after excluding a few cases which were apparently peri-urethral abscesses, and did not definitely involve the prostate itself. Cases of tubercular prostatitis had also been excluded.

I. The first specimen presented was from a man, twenty-two years of age. He had given a history of gonorrhœa lasting for three months before his present illness. He had recovered from this attack entirely at the time of his admission to the hospital. Five days previous to his coming to the hospital, he was seized with retention of urine, and he had been catheterized daily. On admission the temperature was  $102^{\circ}$ . Examination showed a stricture in the deep urethra. On the same day he had a chill and a temperature of  $105^{\circ}$ . There were repeated chills after this, with a morning temperature of  $99^{\circ}$  and an evening temperature of  $105^{\circ}$ . Four days after admission, a swelling appeared in the perineal region associated with some local pain and tenderness. A median incision was made, and considerable

pus evacuated from the neighborhood of the deep urethra. The patient died two hours later.

At the autopsy, the spleen was found to be considerably enlarged and quite soft; there was an abscess 5 ctm. in diameter, and numerous smaller abscesses in the left kidney. The right kidney contained two small abscesses. The pelves and ureters were much dilated and inflamed. The bladder wall was thickened and contained a small quantity of purulent urine. The left lobe of the prostate was the seat of a deep abscess 1 ctm. in diameter, from which a probe could be passed to a peri-urethral abscess 3 ctm. in diameter, located just in front of the prostate. The median perineal incision had passed from the perineal abscess into the urethra. The entire urethral mucous membrane was thickened and covered with a false membrane. There were evidences of a stricture of large calibre in the bulbous portion of the urethra. There was a perforation in the left side of the urethra just in front of the urethral orifice, and this communicated with an abscess in the left lobe of the prostate.

The patient died nine days after the infection of the genito-urinary tract, and the cause of infection was probably the catheterization which was necessary before his admission to the hospital.

II. The second case was that of a man, fifty-four years of age, who gave the usual history of stricture. Before his admission, sounds had been passed for the relief of this condition. Ten days before his admission to the hospital, he noticed a swelling in the right perineal region, and this increased rapidly in size. On admission, the temperature was  $102.6^{\circ}$ , and the urine contained a large amount of albumin and granular casts. An abscess was found on the right side of the anus, and it was incised the next day and considerable fetid puss escaped. After this the temperature was not so high. About nine days after the first symptoms, he developed considerable irritability of the bladder, and examination of the urethra showed a stricture at four inches, which would only admit a filiform bougie. Two weeks after the onset of the first symptoms, external urethrotomy was performed, and the urethra was cut to No. 32 French. After this the temperature ranged between  $99^{\circ}$  and  $102^{\circ}$ . The patient became at first stupid, and then unconscious, and finally died of heart failure eighteen days after the performance of the external urethrotomy. No chills were recorded.



At the autopsy, the kidneys were found to be the seat of quite extensive chronic diffuse nephritis, and contained also multiple miliary abscesses. The pelves and ureters were distended with purulent urine, and the mucous membrane was inflamed. The bladder was greatly hypertrophied, and the mucous membrane was inflamed and coated with pus. The prostate had been converted into a series of communicating abscesses, which had a capacity of two ounces. A pin-hole opening connected the abscess with the urethral canal. The pus had infiltrated the connective tissue behind the prostate as far as the pelvic peritoneum, but there was no pelvic peritonitis. There was an incised wound in the perineum which communicated with the bulbous portion of the urethra, but had not opened into the prostatic abscess.

The interesting features were : (1) a prostatic abscess developing a few days after the dilatation of the stricture with sounds ; and (2) the relatively low temperature, the highest being  $102.6^{\circ}$ . The cause of death was general urinary infection.

III. The third case was that of a man, fifty years of age. He denied ever having had venereal disease. Four weeks prior to his admission he rather suddenly developed headache and a temperature of about  $103^{\circ}$ . Two weeks later, quite violent symptoms of cystitis appeared, associated with retention of urine. Catheters were used daily for two weeks previous to his coming to the hospital. On admission, his temperature was  $100^{\circ}$ . There was a large fluctuating mass felt in the anterior rectal wall. He was catheterized, and fifty-two ounces of urine drawn off. The urine was acid, and contained five per cent. of albumen with considerable pus and blood. He had a chill on the following day, and a temperature of  $103.4^{\circ}$ . He developed delirium and a high temperature persisted. The abscess was opened by a high perineal incision, and considerable pus evacuated, but the symptoms were not relieved. He died in a condition of coma a few days later.

The autopsy was made thirty hours after death. The spleen was three times the normal size, and quite soft. The kidneys showed moderate chronic diffuse nephritis, and contained a few groups of miliary abscesses in their cortices. The pelves and ureters were inflamed and distended with purulent urine. The bladder contained about four ounces of purulent urine ; the muscular wall was hypertrophied : the mucous membrane was soft-



ened, thickened, and of a greenish color, and there was a small amount of fibrinous exudation at the base. The prostate has been destroyed by suppurative inflammation, the pus being situated in indistinctly outlined spaces, having ragged walls, and not communicating freely with each other. The incision in the left side of the perineum had drained most of the abscesses on the left side of the prostate, but those on the right side were still full of pus. A sharply defined circular opening, 2 mm. in diameter, was located in the anterior rectal wall, and this communicated with one of the abscesses in the right lobe of the prostate. There was another opening, 2 mm. in diameter, and in the left side of the floor of the urethra, just at its beginning. This communicated with an abscess, 2 ctm. in diameter, located just behind the trigone. This abscess did not seem to communicate with any of the others. The urethra was congested throughout, but was normal in calibre. The mucous membrane in the bulbo-membranous portion was superficially lacerated in a longitudinal direction, probably from rough use of the catheter. An immediate bacteriological examination of the pus evacuated at the time of the operation was made, and absolutely nothing found in the cultures except the staphylococcus pyogenes aureus. However, in the fresh pus stained on a slide, there were also some diplococci of uncertain character. Cultures taken at the autopsy developed, in addition to the staphylococcus pyogenes aureus, a bacillus which grew very rapidly and which was regarded purely as a contamination.

A point of interest in this case was the development of cystitis and the accompanying prostatic abscess, apparently as a complication of some acute febrile process. He had been catheterized for two weeks previous to his coming to the hospital. The abscess cavities in the prostate were of large size. The one on the right side communicated with the rectum, while that on the left side communicated with the urethra, although neither of the perforations was sufficient to drain the abscesses. The chills were frequent and the fever relatively high. The patient died of general urinary infection including the kidneys. The cause of the suppuration seemed to be the staphylococcus pyogenes aureus, although the other germs found in the fresh pus and which failed to grow in the culture, might have had some bearing on it.

IV. The fourth case was that of a Russian, twenty-two years of age, who was brought to the hospital in an ambulance after internal urethrotomy had been done at a physician's office. The

hemorrhage had been so profuse that a large catheter had been tied in the urethra, and the patient hurriedly sent to the hospital. The urine was found to be loaded with pus and blood. On the day following his admission, his temperature was  $104.5^{\circ}$ . Next day he had a slight chill, the temperature remaining high. An abscess developed in the supra-clavicular region on the left side two weeks later. He became delirious and died nineteen days after admission.

The autopsy revealed an extensive broncho-pneumonia and an acute pleuritis. The spleen was three times the normal size and very soft. The kidneys were much congested and swollen, but contained no abscesses. The bladder contained a small amount of pus and was acutely inflamed. The left lobe of the prostate was enlarged, and on incision was found to contain a large collection of pus. The axillæ and supraspinous fossæ contained abscesses holding about six ounces of pus. The cause of death was pyæmia, the kidneys and ureters not being affected.

V. The fifth case was that of a man, twenty-eight years of age, from whom no previous history could be obtained owing to his being in a comatose condition at the time of entering the hospital. At this time his temperature was normal, but on the following day it was  $102^{\circ}$ , and it remained between  $99^{\circ}$  and  $102^{\circ}$  for a period of three weeks. He remained constantly comatose, and catheters were used to evacuate the bladder.

At the autopsy the cause of death was found to be the rupture of an aneurism of the vertebral artery. Both kidneys were congested, the left contained a number of miliary abscesses; the right contained no abscesses. The bladder was intensely congested, and contained purulent urine. The prostate contained an abscess involving not only the prostate but the peri-urethral tissues in front, and communicating with the prostatic portion of the urethra and extensively invading the tissues of the pelvis.

In this case infection was evidently the result of catheterization during the comatose stage. The point of interest was the infection of one kidney only. The abscess communicated with the beginning of the prostatic portion of the urethra. There was no chill and only a moderate elevation of temperature.

VI. The sixth case was that of a man, twenty years of age, who had sustained a fracture of the spine as the result of diving in shallow water. It was necessary to catheterize him. After this had been done several weeks, he developed a chill, followed

by a temperature of  $104.6^{\circ}$ . He then became delirious. The urine was found to contain blood and pus in large quantities. The temperature remained between  $102^{\circ}$  and  $105^{\circ}$  for six weeks. He passed into a state of low delirium, and finally died as the result of his fracture, and of infection of the genito-urinary tract.

The autopsy showed the spleen to be large and soft. The kidneys were the seat of chronic diffuse nephritis and contained many miliary abscesses. The bladder was hypertrophied and filled with purulent urine. There was a large abscess about the neck of the bladder, surrounding the urethra and communicating with the rectum by two small openings two and a half inches above the sphincter. There was no communication between the urethra and the abscess. The fever was relatively high,  $102.6^{\circ}$  to  $104.6^{\circ}$  for six weeks. The cause of infection was catheterization.

VII. The seventh case was that of a man, thirty-seven years of age, who gave a history of having first had gonorrhœa eighteen years before and to have suffered from six or seven attacks since that time. He had noticed symptoms of stricture for twelve years. A stricture in the anterior portion of the urethra was cut to No. 31 French. On the following day the patient had a chill followed by a temperature of  $104.6^{\circ}$ . The temperature ranged high— $101.8^{\circ}$  to  $105.2^{\circ}$  for a period of seven days.

The autopsy showed the spleen to be large and soft. The kidneys were the seat of multiple miliary abscesses, and both pelves and ureters were dilated and inflamed. There was a laceration of the urethra just at its communication with the bladder, on the left side. The left lobe of the prostate contained a large abscess which communicated with the urinary tract at the site of the laceration above mentioned, *i. e.*, practically at the urethral orifice. The abrasion was apparently made during life, probably from the passage of a hard instrument. The left knee-joint contained thin pus.

VIII. The eighth case was that of a man, sixty-four years of age, who gave a history of chronic nephritis for four years. He had been frequently catheterized owing to retention of urine. He died of uræmia without suspicion that the genito-urinary tract had been infected.

The autopsy showed advanced chronic diffuse nephritis, but no abscesses in the kidney. The bladder was hypertrophied, and its mucous membrane thickened and ulcerated. There were abscesses in both the lateral lobes of the prostate, and also in front of the

prostate. There was in this case simply an involvement of the bladder and of the prostate, the pelves, ureters, and kidneys not being affected.

IX. The ninth case was that of a man, forty-two years of age, who had had gonorrhœa twelve years before coming under observation, and constant gleet since that time. He had applied at dispensaries for retention of urine, and had been catheterized and treated with sounds without avail. Examination showed a stricture located at the bulbo-membranous junction, and a smaller one near the meatus. The latter was cut. Following this there was a chill and a temperature of  $101.8^{\circ}$ . The temperature fell to  $99.4^{\circ}$  on the following day, but rose again to  $102.2^{\circ}$ . The urine became diminished in quantity, and he died of suppression eighteen days after admission.

At the autopsy, the spleen was found to be quite large; the kidneys were the seat of advanced pyelo-nephrosis, but there were no abscesses in the kidneys. The ureters and pelves were dilated and inflamed. The bladder contained a small amount of purulent urine, wall was considerably hypertrophied, and its mucous membrane acutely inflamed. There was an incision in the floor of the anterior portion of the urethra. The stricture at the bulbo-membranous junction had not been operated upon in any way. There were two openings, one on each side of the urethra, just at the beginning of the prostatic urethra, and they led into abscess cavities in the prostate, having a capacity of one ounce. In this case the pelves, ureters, and bladder were infected, but the kidney tissue proper escaped.

X. The tenth case was that of a man, aged sixty-eight, who had suffered from symptoms of vesical calculus for one year, and had used a catheter for four months. He died two days after median lithotomy.

The autopsy revealed multiple abscesses of the kidneys with dilatation and inflammation of the pelves and ureters. The spleen was softened, and the lungs contained areas of broncho-pneumonia. The prostate was enlarged and contained large collections of pus, which had not been opened by the perineal incision. No communication was found between the abscesses and the urethra, bladder, or rectum. A few fragments of calculus were still present in the hypertrophied and inflamed bladder.

The speaker said that out of the ten cases of prostatic abscesses in which the records had been examined, six gave venereal his-

tories, three denied such a history, and in one no record was made in regard to it. Catheters were used and appeared to be connected with the infection in five cases. In one case there was a question as to the use of the catheter, no record having been made in regard to this point, yet no good explanation had been offered of the source of infection. In three cases, the infection was directly due to the operation of internal urethrotomy. In one the symptoms followed dilatation of an old stricture by sounds. Seven of the abscesses were large, and three comparatively small. Five of them communicated with the urethra only, and all of these communicated with it in the posterior part of its prostatic portion. One communicated with the rectum alone; one with both rectum and urethra; and three small ones did not communicate with either urethra or rectum. In five cases there were cystitis and double pyelo-nephritis: in one, cystitis and pyelo-nephritis of one kidney; in one, cystitis and pyelo-nephrosis; in one, pyæmia with pyelo-nephritis; in one, pyæmia without pyelo-nephritis; and in one case there was no infection beyond the prostate. In three of the cases the temperature ranged between  $104^{\circ}$  and  $105^{\circ}$ ; in five between  $99^{\circ}$  and  $102^{\circ}$ ; in two there was no record of temperature, so it was probably quite low.

In all but one of the cases there was a history of the use of instruments in the urethra some time previous, or the infection followed immediately upon the operation of internal urethrotomy. The severity of the symptoms probably depended somewhat on the variety of organism producing the infection. The possible causes of death in cases of prostatic abscess are pyæmia, septicæmia, peritonitis, or simply genito-urinary infection, exclusive of other diseases. Septicæmia is the probable cause in cases where there are large abscesses without secondary deposits of pus. Peritonitis occurs from extension of the inflammation through the connective tissue of the pelvis to the pelvic peritoneum.

The prognosis should be guarded owing to the frequency with which prostatic abscess was associated with general infection of the urinary tract. In eight of these cases the kidney was involved. It would seem that the most frequent cause of death was infection of the upper portion of the urinary tract.

Dr. SAMUEL ALEXANDER said that much credit was due to the reader of the paper for the way in which he had grouped his facts. There were acute abscesses occurring as a result of gonorrhæal infection of the urethra, and they were perhaps more common



than the chronic. They were due to secondary infection either through sounds or injections, and were marked clinically by the sudden onset of the symptoms—a chill and a much higher temperature than was usually present in the chronic cases. The diagnosis was not difficult if a rectal examination were made; the symptoms could be quickly relieved by operation. He thought that all the cases just presented should be grouped as chronic abscesses because the condition which predisposed to the infection was chronic. In most of the cases there seemed to have been a previous pathological condition of the urinary tract. In half of the cases there was stricture of the urethra, and the autopsy showed secondary changes in the bladder and kidneys, thus predisposing to general infection of the genito-urinary tract. One striking peculiarity of this series of cases was the large size of the abscesses. In most of the cases he had seen clinically the abscesses had not been nearly so extensive. We should distinguish between abscess of the prostate and periprostatic abscess. Regarding the prognosis, he would say that it depended more upon the pre-existing condition of the urinary tract and the severity of the infecting cause than upon anything else. Death was most rapid, and the abscess formation most extensive in those cases in which there was a serious lesion of the urethra, causing obstruction, congestion, and infection. Regarding the mode of infection in the cases in which no catheter had been used, the speaker said obstruction in the urethra, by causing urinary overflow and congestion, led to infection. This condition occurred most frequently in patients over forty-five. The perineal operation was, of course, the one above all others for the relief of prostatic abscess, and the moment such an abscess was suspected an opening should be made in the perineum. Where suppuration extended upward into the prevesical space, this operation was necessary; but in addition to this it was essential, as shown in the cases under discussion, that dissection should be made between the prostate and rectum and all the pockets evacuated, and the abscess cavity curetted and treated aseptically.

Dr. THOMAS H. MANLEY said that in those cases in which the spinal cord had been destroyed in the lumbar region as the result of injury, there are various modes of death, the most common being by infection of the genito-urinary tract. Owing to the long, tortuous urethra of the male, this mode of death was much more common in males than in females. While he thought all must agree



as to the good results of careful asepsis, the fact still remained that some subjects were morbidly sensitive to the passage of any instrument in the urethra. In cases of over-distension from paralysis of the bladder, he had found that, in spite of every precaution, infection and death were liable to result.

Dr. BIGGS said that the cases reported in the paper were old ones, and in most of them infection had occurred from catheterization by the patient himself, or by some incompetent person previous to the admission of the patient to the hospital. The importance of making a free opening should not be overlooked, for one of the cases showed that, notwithstanding the communication of the abscess and the perineal opening, drainage was not at all adequate to the needs of the case.

Dr. R. G. FREEMAN presented specimens from a case of

#### CONGENITAL ABSENCE OF ONE KIDNEY AND URETER.

They were taken from a child ten months old, who up to a few days before death had been perfectly well. It then developed croup, was intubated, and died from broncho-pneumonia and extension of the membrane. The right kidney and right ureter were absent. The left kidney was quite large, weighing three ounces. Three such cases had been presented to the Society—one by Dr. Northrup, in 1887; two by Dr. Thacher, in 1892; and one by Dr. Hodenpyl last year. The condition was said to be quite rare. The left kidney was the one more commonly absent.

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*Stated Meeting, September 26, 1894.*

GEORGE C. FREEBORN, M.D., PRESIDENT.

#### REPORT OF THE MICROSCOPICAL COMMITTEE.

Dr. E. K. DUNHAM, on behalf of the Microscopical Committee, reported the results of the examination of the specimen presented to the Society on February 28, 1894—supposed gumma of the heart. Because of the presence of certain bodies closely resembling giant-cells, this specimen had been referred to the Committee. The special object was to make a differential diagnosis between a possible tubercular or syphilitic causation of the

growth. At that meeting the opinion was advanced by one of the members of the Society, that the bodies resembling giant-cells were derived from the muscular fibres of the heart. Further microscopical examinations had confirmed that view, as it had been found possible to select a series of transitional forms explaining the changes. In order to distinguish between tuberculosis and syphilis, a large number of sections were examined for tubercle bacilli, but none was found. The sections also failed to show any reason for regarding the growth as of tubercular origin. In support of the opinion that the growth was of syphilitic origin were certain appearances in the blood-vessels which seemed to indicate a beginning thickening of the vascular wall. The results of the microscopical examinations were therefore confirmatory of the original diagnosis.

#### Giant-cells in Epitheliomata.

DR. GEORGE P. BIGGS referred to a specimen of epithelioma which he had presented to the Society last November in which there were giant-cells. The tumor had been removed from a man, sixty years of age, who had given a history of having received a compound fracture of the inferior maxilla five years before. Following this, a tumor developed in the floor of the mouth, which proved to be an epithelioma. A small nodule was said to have recurred in the scar left after the operation for the removal of the growth. Later, a growth appeared in the submaxillary region on the same side, and this had grown steadily for four months previous to his coming under observation. The specimen referred to, which was a typical epithelioma, contained large numbers of giant-cells of peculiar character, some of them very large, and containing a great many nuclei grouped near the centre rather than at the periphery. The specimen had been submitted to the Microscopical Committee, and Dr. Dunham, after examining a number of sections stained in various ways, was able to demonstrate that these giant-cells had been formed from epithelial cells.

He desired at the present meeting to present a similar specimen which had been removed at the New York Hospital by Dr. Stimson from a man of fifty years who gave a history of progressive loss of voice, and of some pain on swallowing for four years. For five or six months previous to the opera-

tion he had suffered from dyspnœa, which had become so severe that an operation was undertaken. The family history was tubercular, but there were no personal history or symptoms of tuberculosis. The operation consisted in opening the larynx and removing from its interior a large part of the mucous membrane and a new growth. Examination of the latter showed it to be a typical epithelioma. In this specimen also were giant-cells apparently of the same nature as those found in the first specimen referred to. Some of these cells were large, others had only three or four nuclei, sometimes grouped in the epithelial structure and sometimes by themselves. Some of them were round, while others were irregular in shape. Tubercle bacilli were searched for, but not found. Since then in two other cases he had seen similar cells, but not as distinct as in the microscopical specimen just presented. They seemed more prone to form in epitheliomata of slow growth. The literature of this subject was very meagre.

Dr. THOMAS H. MANLEY asked the clinical significance of these cells—in other words, whether their presence was to be considered an element in the prognosis. We knew that, as a rule, cancerous growths, particularly on the tongue, were rapidly fatal, and that sarcomata in this region often did not recur for a considerable time after their removal. He recalled one or two illustrative cases which had occurred in his own practice.

Dr. BIGGS replied that he had not seen a sufficient number of cases to admit of his stating definitely in regard to their possible clinical significance, but in those cases he had reported the growth had been quite slow.

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*Stated Meeting, October 10, 1894.*

GEORGE C. FREEBORN, M.D., PRESIDENT.

TYPHOID FEVER WITH AN UNUSUAL HISTORY.

Dr. GEORGE P. BIGGS presented specimens from a case of typhoid fever, which was chiefly interesting on account of the peculiar clinical history. The subject of the report was an Italian woman, nineteen years of age, and married, with a negative family history. About two weeks previous to her admission to the

hospital she had been taken with prostration, headache, pain in the back and abdomen, and was so ill as to be confined to bed. She felt feverish and constantly hungry. Four days before admission there was quite a profuse hemorrhage from the bowel, and two days later she aborted at the third month. A few days after entering the hospital the physician who had attended her previously called at the hospital and said that, one week before the abortion, an attempt had been made to produce abortion under the impression that the chill that she had had was a convulsion. It had been so reported to him by the friends. At the time of her admission, her temperature was  $104.6^{\circ}$ , the respirations were 28, and the pulse 128. Physical examination revealed nothing but a few râles over the lower lobes posteriorly. The heart sounds were normal, and the heart action, though rapid and feeble, was regular. The spleen did not appear to be enlarged. She was excessively anæmic. The urine had a specific gravity of 1018, and contained five per cent. of albumin, but no casts. On the day following her admission, there was a decided chill, and a subsequent rise of temperature to  $106^{\circ}$ . An intra-uterine douche was given, and a number of old blood clots removed from the uterus. On the following day she was curetted, and a portion of tissue, supposed to be the remains of the placenta, came away. The discharge from the uterus was moderate, and was without odor; but with the history, and with the chills and fever, it was thought probable that her symptoms were due to sepsis. On the third day of her stay in the hospital, there was a hemorrhage from the bowel, similar to that which is observed in typhoid fever, and that night she had a severe chill. She was more than ever prostrated the next day. The urine had a specific gravity of 1009, and contained two per cent. of albumin and granular casts. She died one week after admission, and just three weeks from the onset of the first symptoms.

The lesions at the autopsy were found to be those of a typical case of typhoid fever. The spleen was about three times its usual size. The mesenteric glands were greatly enlarged. The typhoid ulcers were limited to the lower two feet of the ileum, and were particularly prominent in the last nine inches. There were also a few typhoid ulcers in the ascending colon, though these were quite superficial. The mucous membrane at this point was much congested, and there were small hemorrhages. Some of the ulcers in the small intestine were quite deep. The body of

the uterus was cauterized with a hot iron, and a culture taken from the interior of the body of the uterus. The result was a pure culture of a bacillus which appeared to be identical with those obtained from the spleen. The uterus was about 10 ctm. in length and 6 ctm. in breadth at the middle. Its interior surface was covered with a whitish fibrinous material. The cavity was entirely empty. The peritoneum was normal, as were also the ovaries and Fallopian tubes, showing clearly that there had been no septic process originating in the uterus. A very marked atheromatous patch was noted in the aorta. The other organs showed well marked parenchymatous changes, passing into fatty change. This was particularly noticeable in the heart and liver. In the latter organ there were also some peculiar yellowish areas, the exact nature of which had not been determined. They were located in the centre of the lobules, and from an examination of a frozen section they appeared to be composed of a few fat globules and of granular detritus.

DR. BIGGS also presented specimens from a case of

#### GENERAL TUBERCULOSIS.

They were removed from a woman, forty-seven years of age, who had been admitted to the New York Hospital on May 16, 1894. For one year previous she had had constant pain in the left hip with a sense of numbness of the left thigh. For six months the severity of the pain had steadily increased. Examination under ether showed a mass about the size of a duck's egg in the left iliac fossa. It was quite tense and immovable. On admission the temperature was  $98.4^{\circ}$ , the respirations 24, and the pulse 76. The urine was alkaline, had a specific gravity of 1016, and contained a trace of albumin and a few leucocytes. Under ether a four-inch incision was made just above and parallel to Poupart's ligament on the left side. This led the way to an extra-peritonæal collection of fluid in the left iliac fossa. On incision six ounces of a dark greenish fluid escaped. The cavity was washed out and packed with gauze. No connection between the cyst and the other parts could be detected. The fluid was not examined. The pain was relieved by the operation. On June 25th, she menstruated. By the time the wound had nearly closed, July 5th, she was again complaining of much pain. The wound was re-opened, and with the finger in the rectum another



mass was felt quite low down. A similar collection of fluid was evacuated, and the same treatment adopted. The first cyst had apparently disappeared by this time. The urine was then found to be free from albumin, but it contained hyaline casts. The pain was once more relieved by the operation. On July 30th, another accumulation of fluid was evacuated. On August 4th, it was noted that the left leg was quite markedly adducted and rotated inward, and that it was partially flexed, with a shortening of the limb on that side of one inch. The pain was now worse, and the discharge from the old sinus quite profuse. On August 11th, this sinus was explored, and a distinct, harsh crepitation could be felt on moving the thigh. The finger could be passed into the hip-joint. The head of the femur was found to be bare, and considerably eroded. The patient's temperature at that time was as high as  $103^{\circ}$  in the evening. On August 19th, some œdema of the right leg and foot was noted. The œdema increased, and she finally died on October 9th.

The first specimen presented, the hip-joint, showed that the floor of the acetabulum had been entirely destroyed, and that the opening so made communicated with a large collection of pus. The lining of the acetabulum was extensively infiltrated with partially necrotic tubercular tissue. The head of the femur was also exhibited, and was shown to be deeply eroded. There was a large abscess extending up behind the peritoneum as far as the diaphragm on the left side, and as far as the spinal column on the right side. Another abscess extended down on the inner side of the pelvis between the layers of the broad ligament. There were also abscesses burrowing down into the thighs. The pus was rather thin and mixed with blood. There was another collection of about two ounces of thick cheesy pus in the median line in the prevesical space. The mucous membrane of the bladder was considerably thickened and congested, and there were a few points of hemorrhage. Its whole surface presented a more or less granular appearance. In the trigone were two perfectly distinct tubercles. The uterus was of about the normal size, and contained three perfectly characteristic fibroids about the size of hickory nuts. The mucous membrane of the upper two-thirds of the body of the uterus was covered with a yellowish white, cheesy layer characteristic of tuberculosis of the endometrium. The posterior wall of the vagina contained one small nodule about 3 mm. in diameter, and this, on incision, was found to contain



some material apparently tubercular, although the presence of tubercle bacilli had not been demonstrated. The tubes were larger and harder at a distance from the uterus, and were filled with cheesy matter. The ovaries were distinctly atrophied, and while the tubes were adherent to them there was no evidence of tubercular matter in the substance of the ovaries. There were no symptoms referable to the condition of the genital organs. There were typical tubercular deposits scattered through both lungs. The bronchial glands were deeply pigmented, but contained neither cheesy nor calcareous matter. The liver was extremely fatty. In spite of the rather prolonged suppuration, none of the organs gave a reaction with iodine. A nodule was found in one of the supra-renal capsules, which was probably tubercular in its nature. It was fibrous rather than cheesy, and was situated superficially in the supra-renal capsule. The intestines showed no tubercular lesions. The peritoneal cavity contained no fluid, and the pericardium and pleura were perfectly normal.

#### MARKED ATHEROMA OF THE AORTA.

DR. BIGGS also presented a specimen of marked atheroma of the aorta. The specimen had only been removed late that afternoon by autopsy from a man dying with uræmic symptoms. The kidneys showed rather advanced chronic diffuse nephritis. No special lesions were found except in the aorta which, in the lower portion, showed a large number of greatly softened areas—some of them measuring as much as 2 cm. in diameter, and apparently on the point of rupture.

Dr. Biggs, in answer to a question from Dr. H. P. Loomis as to what he considered the primary lesion in the case of tuberculosis replied that the lesions in the hip and genital organs appeared to be of longer standing than those in the lungs. Personally, he thought primary tuberculosis of the genital organs was not very rare.

Dr. R. H. SAYRE said that the lesions in the lungs and genital organs seemed to him much more recent than those in the hip, and certainly the clinical history seemed to point to primary disease in the hip.

Dr. Biggs asked what would then be the explanation of the tuberculosis in the hip.

Dr. Sayre said he did not think any one had offered a

satisfactory explanation of the common clinical fact of tuberculosis of the joints without apparently any prior tubercular lesions. There were various autopsies on record, where, so far as the gross appearances went, there were no evidences of tubercular processes in the lungs, yet there were quite well marked tubercular processes in the organs. Virchow had reported several such autopsies. He saw no reason for assuming that tuberculosis must come through the lungs.

Dr. J. S. ELY thought there was another way of explaining a primary tubercular process in the internal organs where it occurred in relatively young persons and that was by direct transmission of the tubercle bacilli from the mother to the foetus. Such transmission had been demonstrated experimentally. The possibility of similar transmission in man was inferred from these experiments. Bacteria thus transmitted might lie dormant for four or five years, or even longer. It was known that, under certain circumstances, germs might remain quiescent in the body for a long time, and then become active. Fraenkel had reported a case several years ago, in which a deep abscess had developed a year after a typhoid fever, in the pus from which the typhoid bacillus was found by cultivations. In Vienna not long ago a case of osteo-myelitis had been reported where careful search revealed no fresh source of infection, but where, thirty-five years after a previous osteo-myelitis, there was a fresh outbreak at the same spot. On chiselling away the bone a layer of fresh pus was found containing the staphylococcus pyogenes aureus. It was surrounded by dense bone which had probably encapsulated the bacteria thirty-five years before. Now, it was possible that the hip, in the case under discussion, had become infected many years before any real outbreak of tuberculosis had been manifested by physical signs. It seemed to him that the hip was the primary source, but he also believed that the path of entrance of the tubercle bacilli had been the lungs. A strong argument to him was the much greater frequency with which the bacilli entered the lungs than elsewhere.

The PRESIDENT said that not long ago he had had sent to him for examination a portion of tubercular tissue taken from a female nurse's arm. During labor, her arm had been gripped very strongly by the patient, and some time afterward small nodules had developed subcutaneously at this spot. On examination, he had found the typical lesions of tuberculosis, as well as tubercle bacilli in the lesions. Three or four specimens were taken. More

recently he had learned that there had been a diffuse tubercular inflammation of the cellular tissue of the arm. The patient appeared to be perfectly healthy. It was thought that the lymph nodes in the arm had contained some of these bacilli, and that the gripping of the arm, by rupturing these nodes, had set free these germs, and had enabled them to become active as a result of this traumatism.

Dr. H. P. LOOMIS recalled an autopsy made about three years ago on a prize fighter. He had died of acute pneumonia. The autopsy showed the lungs normal with the exception of the pneumonia, but there was a large bronchial gland which contained typical tubercle bacilli in large numbers, and also typical tubercular lesions, showing that these germs might be stored up in the body for a long time without manifesting themselves.

Dr. W. G. HUDSON presented a microscopical specimen for an opinion as to its nature.

Dr. H. P. LOOMIS expressed the opinion that the specimen was undoubtedly one of tuberculosis.

Dr. J. S. ELY presented

#### TUMORS FROM DOGS.

The first tumor was an enchondro-osteo-sarcoma of the mamma of a bitch. The specimen was taken from a thoroughbred Irish spaniel belonging to Dr. Furman. Last March this animal had a litter of seven pups. One of them nursed persistently on one of the left nipples. Shortly afterward several lumps developed in this mamma, which were lanced by Dr. Furman, and pus evacuated. Three months before the tumor was removed it had become so large as to be troublesome.

The second tumor, of which a microscopical specimen was also presented, was a carcinoma of the skin, situated on the lower surface of the tail of a dog about one inch from the root of the tail. These tumors, the speaker said, sometimes developed from the peri-anal glands, but in this case there was no connection with the trunk. The tumor was dense and lobulated.

The speaker said that Bland Sutton, in his *Introduction to General Pathology*, had treated, at considerable length, of tumors, yet he had not mentioned carcinoma as common in dogs. In a recently published article on tumors in some of the lower animals, thirty-eight tumors were described as having been observed in

dogs, viz. : 16 adenomata, 9 carcinomata, 2 epitheliomata containing "pearls," and 11 sarcomata.

THE PRESIDENT presented a portion of

#### OVARIAN TUMOR SHOWING ELECTRO-PUNCTURES.

The growth had been removed from a woman, forty-six years of age. The history of the growth extended over a considerable number of years. She had been under treatment in London for a long time, and while there 113 electro-punctures had been made during the period of one and a half years. The tumor, nevertheless, continued to grow. She entered the hospital service of Dr. Bache Emmet, and on April 10, 1894, he removed the tumor piecemeal. It was attached to the left horn of the uterus. The woman died of shock. The tumor was a large lobulated mass, the central portion of which was a rather large cyst. The greater part of the cyst was composed of fibrous tissue. There were evidences of smaller cysts in the wall. Microscopical examination showed the tumor to be a fibro-sarcoma. The spots, which from their gross appearance were at first supposed to be hemorrhagic, were really areas of necrosis. Scattered through the tumor were calcareous masses. The clinical record was unfortunately very incomplete.

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*Stated Meeting, November 14, 1894.*

GEORGE C. FREEBORN, M.D., PRESIDENT

#### SPONTANEOUS RABBIT SEPTICÆMIA.

DR. ALEXANDER LAMBERT reported a spontaneous outbreak of septicæmia hæmorrhagica occurring among rabbits.

Among the rabbits confined in the animal house connected with the Pathological Laboratory of the College of Physicians and Surgeons there occurred in January, 1894, a large number of deaths from an unknown cause. These deaths were among the rabbits which had been operated upon, and among the healthy animals. The majority of these rabbits were fresh from the country, and had been confined but a few days in the animal house. Nearly thirty died within two weeks. Autopsies showed in the majority of cases a slight congestion of the lungs and an

enlargement of the spleen. All the other organs were apparently normal. Cover-glass smears and cultures of the heart's blood of several of these animals gave a small bipolar bacillus, the morphology and biology of which, the speaker said, he would give later on in these remarks. In one case there was a universal exudative peritonitis. The exudate was largely fibrinous, with but little purulent fluid, and the intestines were matted together. The spleen was large and dark: the other abdominal organs were apparently normal. Both pleural cavities and the pericardial sac were filled with fibrinous exudate and purulent fluid. The lungs were congested.

In one other case the abdominal organs were apparently normal, except that the spleen was small and pale. Both lungs were, however, crowded and flattened against the vertebral column by an abundant exudate. The exudation in the right pleural cavity was reddish-yellow and fibrinous, and that in the left pleural cavity was a yellow purulent fluid. The pericardium was also filled with a yellow purulent fluid.

Cover-glass smears and cultures of the peritoneal and pleural exudates gave a bipolar stained bacillus, similar to that in the heart blood of the other rabbits already mentioned, and having the following characters: The bacillus was small, and round-ended, the ends being more deeply stained than the centre. Sometimes the bacillus was uniformly stained, especially after being in contact for a long time with the staining fluid. These bacilli may present themselves as small ovoids, hard to differentiate from cocci. They stain easily with the anilin colors, but are decolorized by Gram's method. The size varies from  $1.5 \mu$  long by  $0.56 \mu$  broad, to  $0.7 \mu$  long by  $0.49 \mu$  broad, the average being  $1.1 \mu$  long by  $0.53 \mu$  broad. They appear single, and sometimes united in pairs or in rows of three to four elements. They are non-motile, and do not liquefy gelatin. In gelatin plates they form small, light yellow, finely granular, sharp-edged colonies, which after a few days usually show a dark yellow centre and concentric rings. The deeper colonies are of the same appearance. The colonies are often circular, often ovoid. Sometimes the colonies just below the surface seem to grow better than the surface colonies. In punctures in gelatin the growth usually commences just below the surface, extending in a thin white, finely granular streak to the bottom of the puncture, the lower half of the growth being made of fine, separate dots. The upper

half of the growth is formed by the coalescence of the small colonies. The growth remains slight. Sometimes there is a surface growth; when this occurs, it is a gray-white, slightly raised growth extending but little around the puncture opening. In agar at  $37.5^{\circ}\text{C}$ ., a thin, smooth-edged surface growth occurs, extending not far beyond the inoculation line. This is bluish-white by transmitted light, gray-white by reflected light. The growth extends to the bottom of a puncture, and slightly around the puncture opening. The growth is similar, but slower at room temperature. On Wurtz litmus-lactose agar a good growth occurs, but with no change in the color of the litmus, and without formation of gas. In simple meat broth (one per cent. commercial peptone, one half per cent. salt, and meat infusion) the growth is abundant, causing a diffuse turbidity of the medium with a whitish ring around the edge at the surface of the broth, with an abundant grayish-white viscid sediment. At times the growth is more flocculent than at others. The broth remains turbid after two months. When grown for forty-eight hours at  $37.5^{\circ}\text{C}$ . in broth with one per cent. peptone, and one half per cent. salt, the indol reaction is obtained by the addition of sulphuric acid without the addition of nitrites.

In a bent tube containing broth with one quarter per cent. peptone, half per cent. salt, and two per cent. glucose, the medium becomes turbid, but no gas is formed, the growth occurring more abundantly in the open than in the closed end of the tube. In broth with 0.1 per cent. peptone and 0.02 per cent. potassium nitrate, on addition of six drops of naphthalamine sulphate and a few crystals of sodium anilate, it gives a pink color, showing that it reduces the nitrates to nitrites. The bacillus grows in milk without coagulation, but with the formation of an acid.

As a rule, no visible growth had been obtained on potato, though a very slight invisible growth was proven to exist. The one exception to this rule was in the case of the rabbit with pleurisy without peritonitis. This single exception may have been due to some difference in the composition of the potato itself, as potatoes reacting 0.2 per cent. and 0.08 per cent. acid to phenolphthalein were used. A moderate growth was obtained in an anaerobic hydrogen broth tube.

To test the pathogenesis of the above germs, broth cultures grown for forty-eight hours at  $37.5^{\circ}\text{C}$ . were used. Seven rabbits were given intra-peritoneal injections of 1 cc. or 2 cc. Two



rabbits were injected with germs obtained from the heart-blood culture, 2 cc. being given to each. Both were found dead in thirty hours. Two were injected with germs from the pleurisy cultures, one of them with 2 cc., and the other with 1 cc. The former was found dead in thirty hours, and the latter in thirty-six hours. Three were inoculated with germs from the peritonitis cultures, the first with 2 cc., the second with 2 cc., and the third with 1 cc. The first animal was found dead in sixteen hours; the second rabbit remained alive; the third remained alive even after receiving one week later 2 cc. more. The inoculations were made late in the afternoon, and on the following morning it was found that the animals had lost their appetite, that they remained crouching in a corner, and could not be made to run around, and that when laid on their sides they regained their crouching position with difficulty. When handled, they showed no evidence of pain. Two had a decided diarrhœa. The autopsies showed the animals emaciated; the bellies more or less distended; the inguinal and axillary glands enlarged and congested; the subcutaneous vessels over the abdominal wall filled with blood. Where the needle had passed through the abdominal wall was an area of purulent hemorrhagic œdema of considerable extent. In two cases this was very large. It did not infiltrate the abdominal wall itself to any great extent, but was superficial in the subcutaneous tissue. On opening the abdominal cavity, the intestines were seen to be adherent to the parietes, and glued together with purulent fibrinous masses. Over the surface of the large intestine were scattered petechial hemorrhagic spots, and large and small hemorrhagic areas. The small intestine did not, as a rule, show a hemorrhagic inflammation, though in one case it was very marked, the Peyer's patches showing, deeply infiltrated with blood, and the stomach on its greater curvature, and extending over on to the lesser curvature, showing a great number of transverse hemorrhagic striations. The omentum always showed numerous hemorrhagic areas. The parietal peritoneum was congested. The fluid exudate varied from a slight increase of serous fluid to a large amount of turbid, purulent fluid, or bloody exudate. The spleen was invariably large and soft, and of a deep purple color. The liver and kidneys were normal in appearance. The lungs were sometimes normal in appearance, sometimes deeply congested. In two cases the pericardial sac was filled with turbid fluid. The thymus gland showed in all cases numerous hemor-

rhagic spots. The trachea and bronchi showed marked sub-mucous hemorrhagic infiltration, except in the rabbit dead in sixteen hours, in which case they were normal. The spinal cord in the three cases examined showed petechial hemorrhagic spots on the membranes. The brain of these three animals did not show any abnormal appearances.

The two animals which survived the inoculations were killed after ten days, they having shown no loss of appetite or other symptoms. The one which had received 1 cc., and then a week later 2 cc. intra-peritoneally, showed no lesions whatever. The other having received 2 c.c., showed, at the seat of inoculation, a large subcutaneous abscess of yellowish-white creamy pus. There was no œdema, and but very slight inflammatory changes around it. There were no other lesions. No cultures were made of this abscess, but cover-glass preparations gave the bipolar stained round-ended bacillus.

In the rabbits dying with peritonitis, cultures and cover-glass smears were made in all cases from the abdominal wall abscesses, peritonic adhesions, spleen, left kidney, liver, and heart's blood, and in the two cases associated with pericarditis, from the pericardial exudate also. The cultures and cover-glass smears thus obtained showed pure cultures of the germ used for the inoculations.

Similar outbreaks of septicæmia among rabbits are described by Smith,\* and by Eberth and Mandry.† The germ so far described agrees very accurately with that isolated by Smith in morphological appearance, size, culture growth, symptoms, and lesions induced in rabbits inoculated with pure cultures.

The bacillus of spontaneous rabbit septicæmia described by Eberth and Mandry differs in its motility, culture peculiarities, and pathogenesis for rabbits, and is a different, though closely related micro-organism. The germ I have isolated also agrees in morphology, culture growth, and pathogenic peculiarities for rabbits with the American swine plague bacillus described by Welch‡ in 1889. This germ appears to belong to the widespread family of bacteria, which includes the chicken cholera of Pasteur, the rabbits epticæmia of Koch and Gaffky, the Wild seuche of Hueppe, the Rinderseuche of Kitt, the Schweineseuche of Schutz,

\* Smith, *Jour. of Compar. Med. and Surgery*, vol. viii., p. 24.

† Eberth and Mandry, *Virchow's Arch.*, Bd. cxxi., p. 340.

‡ Welch, *Johns Hopkins Bulletin*, vol. i., December, 1889.

the Buffelseuche of Oreste and Armani, and the American swine plague.

The comparative studies of Caneva\* and Bunzl-Ferdern† show the close relationship of the members of this group, and these authors consider some of them as probably identical. Hueppe‡ also believes in this probable identity, and classes these under one name, as the *Bacillus septicæmiæ hæmorrhagicæ*, from the form of septicæmia to which they give rise. Bunzl-Ferdern and Caneva further classify as belonging to the same family, but to another group, the bacillus of spontaneous rabbit septicæmia of Eberth and Mandry, the French swine plague at Marseilles of Rietsch, Jobert, and Martinaud, and the ferret plague of Eberth and Schimmelbusch.

As soon as it was appreciated that a plague was destroying the rabbits, all animals then in the animal house were removed, and the house and cages thoroughly washed out with a five per cent. carbolic-acid solution. After a few days, the animals were returned to their cages, and no further infection occurred.

DR. W. P. NORTHRUP reported a case of

#### SPLENIC LEUKÆMIA.

The patient was a man, thirty years of age, who had been sent to him by Dr. Toms, of Bellport, L. I., who had made the diagnosis. The man's work as an electrical engineer had exposed him to very high temperatures, and to a high voltage of electricity. He had been in exceptionally good health up to six weeks before admission, at which time the present trouble was first noticed.

When first seen by the speaker, his feet were greatly swollen, his skin was bronzed, his nasal respiration was greatly obstructed and he was quite deaf. These symptoms were afterwards decided to be due to adenoid growths, and to enlargement of the tonsils. There were numerous small nodules under the skin, and the parotid gland was prominent and very sharply defined. The cervical, supra-clavicular, axillary, and inguinal glands were also distinctly enlarged. The spleen was enormously enlarged, extending  $11\frac{3}{4}$  inches below the free border of the ribs. The ratio of the white blood cells had been variously estimated by different observers,

\* Caneva, *Centrbl. f. Bakteriöl. und Parasienkunde*, vol. ix., p. 557.

† Bunzl-Ferdern, *Centrbl. f. Bakteriöl. und Parasienkunde*, vol. ix., p. 787.

‡ Hueppe, *Berliner klin. Wochenschrift*, 1886, Nos. 44, 45, 46.

as 1 to 3 and 1 to 4. They were largely mononuclear cells, small lymphocytes. There were few multinuclear cells. They were for the most part neutrophile; very few eosinophile. His temperature ranged from normal in the morning to  $102^{\circ}$  in the evening for the first week, and reached during the last five days of his illness a maximum of  $103^{\circ}$ . The heart action was rapid, but the pulse was full and of very lax tension. This was a very striking feature of the case. He also suffered from a marked hard swelling of the gums—a hemorrhagic gingivitis—very tender with superficial ulcers. Night sweats were also quite severe. All that was accomplished by treatment was an improvement in the condition of the gums. Finally, he was taken with syncope, followed by marked delirium, coma, and death. When last estimated, the hæmaglobin was between 30 and 35 per cent.

The autopsy was made by Dr. George A. Tuttle, who found that the retro-peritoneal and mesenteric glands were enlarged. The liver was of the nutmeg variety, and weighed 101 ounces, while the spleen, which was simply hypertrophied, weighed 73 ounces. The thymus gland was enormously hypertrophied. On section, it showed simple hyperplasia. There was no evidence of internal hemorrhage in the various cavities, as had been expected, but on the dura mater at the vertex were limited areas which appeared to be either localized pachymeningitis or lymphoid growths. There was nothing to indicate any change in the marrow of the bones. Specimens removed from the dura mater were exhibited.

Dr. JAMES EWING said that he had counted the blood corpuscles in this case. At the first count there had been 425,000 white and 880,000 red, and on the second count 430,000 white and 925,000 red blood cells.

Dr. NORTHRUP also presented some

#### WHITE GALLSTONES

which had been removed *post mortem* from a gall bladder. They were composed almost entirely of cholesterin.

Dr. J. S. ELY presented

#### A FROG WITH A SUPERNUMERARY HIND LEG.

The condition, he said, was a rare one, and had not been observed before at the college laboratory, although many frogs were kept there. The question arose, Was this frog an abnormal twin,

or was this simply a dichotomy of one of the lower extremities? Bland Sutton says that all these dichotomies occur much more frequently in the lower animals than in the human subject, and he gives figures of both frog and toad showing such a condition.

The speaker said that as to whether this was a "parasitic monstrosity" or not, he would say that although the extra extremity seemed to be one extremity, there was at the distal portion a suggestion of there being two feet, there being six phalanges instead of five. When first seen, the frog was alive, yet no motion in the supernumerary limb had been observed, and no reflex movements could be excited.

DR. JAMES EWING presented a specimen showing

#### LIPOMATOSIS OF THE HEART.

The heart had been taken from a woman, forty years of age, who had been received into the Bellevue Hospital in a dying condition, so that no physical examination had been made. The heart showed the thickness of the muscle at the tip of the left ventricle to be less than one sixteenth of a millimetre, and at the thickest portion half an inch. The muscular wall of the left auricle was almost invisible. The right side of the heart was similarly affected. There was a very moderate amount of interstitial myocarditis, and but little fatty degeneration of the muscle. The other viscera showed very advanced fatty degeneration. There was a phthisical process in the apex of one lung.

DR. GEORGE P. BIGGS presented a specimen of

#### THROMBOSIS OF THE AURICLE OF THE HEART.

A laborer, thirty-nine years of age, was brought to the New York Hospital in an almost moribund condition, and consequently there was no clinical history. Some fluid was drawn off from the chest to relieve the urgent symptoms.

At the autopsy there was no subcutaneous œdema found. The peritoneal cavity was normal. Each pleural cavity contained about 500 cc. of serous fluid, and the pericardium 250 cc. of similar fluid. The heart was very greatly enlarged, and the cavities distended with blood to their fullest extent. This blood was almost entirely in the form of post-mortem clots. The distention of the cavities was greatest in the left auricle, the clot here being fully as large as a man's fist. The dilatation markedly predomi-

nated over the hypertrophy. There was an unusually large appendage to the left auricle, and in this, and extending into the auricle was a thrombus measuring 10 ctm. transversely, 4 ctm. vertically, and  $2\frac{1}{2}$  to  $3\frac{1}{2}$  ctm. antero-posteriorly. It was perfectly solid throughout, and distinctly stratified. The organ was enormously dilated, yet, notwithstanding this, the walls were considerably thickened. The mitral orifice was extremely narrow, and the cusps were adherent, so that the orifice had been converted into a narrow slit, having extremely rigid walls. The left ventricle was very greatly dilated. The cusps of the aortic valve were thickened, and slightly retracted. The dilatation of the right side of the heart was marked, but not so extreme as on the other side. The tricuspid orifice was so much relaxed that four fingers could be easily passed through it. There was also a large infarction occupying nearly one half of one of the kidneys.

DR. BIGGS also presented a specimen showing

#### STENOSIS OF THE TRICUSPID ORIFICE.

In this heart the tricuspid orifice was narrowed so as to admit only two fingers with difficulty. It was removed from a woman, twenty-seven years of age, who had been in good health up to three years previously, at which time she had had an attack of acute articular rheumatism. She had recovered from this, but a few weeks before coming to the hospital had suffered a second attack. At the time of admission the temperature was elevated; the heart was displaced; there were said to be double systolic murmurs present—one at the apex and one at the base; there was slight pulsation in the veins of the neck. The urine showed only a trace of albumen at first, but later on the albumen reached as high as sixty per cent. She developed marked anasarca, and finally died with symptoms of uræmic poisoning.

The chief features of the autopsy were the lesions in the heart, and an advanced chronic diffuse nephritis. The mitral, aortic, and tricuspid valves showed lesions of a similar character, consisting of some thickening and of a number of small vegetations on the free border. The mitral valve admitted only one finger; the narrowing at the aortic and tricuspid orifices was not great. There were small thrombi in both auricular appendages in this case, and also behind the tricuspid valve. There were numerous red infarctions in both lungs. The great point of interest was the appreciable narrowing of the tricuspid orifice.



DR. BIGGS presented still another specimen—one of

MILIARY TUBERCULOSIS OF THE LIVER.

It had been removed from a case of tuberculosis which had run a rather rapid course with marked hectic symptoms and hoarseness. At the autopsy the larynx was found to be considerably ulcerated, and the lungs showed tuberculosis chiefly in the form of a large area of cheesy pneumonia, extending down one bronchus, and involving nearly two thirds of the lower lobe. There were old lesions—small cavities and pigmented fibrous cicatrices—in both apices. The chief point of interest was the liver, which was very closely studded with small tubercles—a very diffuse miliary tuberculosis of the liver without similar lesions in the other organs visible to the naked eye.

The speaker said he had only seen this condition once before, and then in a case of tuberculosis presenting no unusual clinical features.

DR. J. S. ELY said he had seen a large number of tubercles in the liver in guinea-pigs which had been inoculated with tubercle bacilli in the abdominal cavity. Of course, there was also a peritonitis under those circumstances. This had suggested to him that in the case under discussion the infection had gone to the liver by the portal circulation, and that in that way the majority of the bacilli had been filtered out of the blood as it circulated through the liver, but few remaining to be carried to the other organs.

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*Stated Meeting, November 28, 1894.*

GEORGE C. FREEBORN, M.D., PRESIDENT.

DR. H. P. LOOMIS presented an unusual specimen of

CALCULUS PYELITIS.

The patient, Kate B., thirty years of age, had been under observation in Bellevue Hospital for two weeks previous to her death, and yet no symptoms had been detected indicative of the extensive kidney lesion from which she had suffered. There had been no frequency of micturition, and no albumin or casts in the urine, but pus had been found in moderate quantity. The history stated that she had been losing flesh and strength for the past two years, and had had repeated attacks of dyspnœa, palpitation,

and precordial pain, with morning vomiting. She had also complained, particularly within the past two months, of severe pain in the back, shooting into the right side. Examination had shown her to be very pale, and the heart action quite feeble. The patient was an alcoholic subject, and had peripheral neuritis, so her general condition was ascribed to alcoholism. She grew steadily weaker, and finally died of cardiac failure.

At the autopsy, which was made twenty hours after death, the heart cavities were found dilated, but there were no valvular or arterial lesions. The liver was enlarged and fatty, but with these exceptions there were no lesions found except in the kidneys. Both kidneys were moderately enlarged, red, and on section the renal substance was found to be almost entirely destroyed, its place being occupied by large cysts communicating in each kidney with an excessively dilated pelvis and calices. In places the cysts were only separated from the capsule of the organ by strips of kidney substance scarcely one eighth of an inch thick. Both kidneys were about equally involved, and contained but very little normal tissue. The cysts contained a thin turbid fluid, apparently urine with some pus. From eight to fifteen calculi were found in each kidney, and they were so large as to fill the pelvis, calices, and a number of the cysts in each kidney. One large stone, the size of an egg, with rounded facets, filled the pelvis and a number of the cysts in the right kidney. The pelves of the kidneys showed none of the evidences of a pyelitis which could be accounted for as a primary condition. The microscopical examination of the calculi showed them to be composed entirely of uric acid. Many of the sections of the kidney showed a comparatively normal structure, while others revealed a moderate interstitial nephritis. Both ureters were dilated. The bladder was normal.

The speaker said that in his experience the formation of such a large number of calculi as a primary condition had been very rare. There was no pyelitis in this case except what had been set up by the irritation of the stones. The secondary retention cysts were due to the hydronephrosis caused by the obstruction which the stones offered to the outflow of urine, as they had moulded themselves into the shape of the pelves or calices, and had extended into the elongated recesses formed by the dilated calices and cysts. Another interesting point was the absence of renal symptoms in this case.

Dr. S. T. ARMSTRONG said that in all cases in which he had found dilated pelves at autopsy, he had also observed that the ureters were dilated. He had been unable to find an explanation of this fact.

Dr. LOOMIS then presented a specimen of

#### ANEURISM OF THE LEFT VENTRICLE.

George H., sixty years of age, had been admitted to Bellevue Hospital in an unconscious condition, with complete paralysis of the right side of the face, and of the right arm and leg. He died at the end of three days without having regained consciousness, so no history had been obtained.

The autopsy was made ten hours after death, and showed an extensive area of yellow softening in the brain, involving the internal capsule, and a part of the temporal lobe. The arteries of the circle of Willis showed atheromatous and calcareous changes, and were extensively diseased. Examination of the small arteries in various parts of the body revealed the existence of a general arterial fibrosis. The kidneys were normal as to size, color, and adherence of the capsule, but the microscope showed moderate diffuse nephritis. The lungs and liver were normal. The heart was enlarged, weighing sixteen ounces, and was of firm consistence. On opening the left ventricle, an aneurism was found to have burrowed nearly through the wall of the heart, leaving only about one twelfth of an inch of muscle fibre intact. The diameter of the aneurismal pouch was about one and a quarter inches. Scattered through the hypertrophied wall of the left ventricle were white patches. One of these was as large as a cherry, and presented almost the appearance of a distinct tumor. Microscopical examination of a number of sections made through these patches, and through portions of the cardiac wall that appeared to be normal, revealed the lesions of a very widely disseminated and advanced interstitial myocarditis, which had entirely destroyed the muscle fibres in the white areas. The thin portion of the aneurismal sac was fibrous tissue with only a few heart fibres seen among the connective tissue. The valves of the heart were normal. The coronary arteries from their origin to their microscopical subdivisions showed all forms of arterial degeneration—calcification, atheroma, and fibrosis. The aorta itself was but slightly diseased.

The speaker said that this heart was interesting: (1) On

account of the extensive and general destruction of the new connective tissue, no portion of the wall of the left ventricle being free from this increase. (2) Because there was a fibroid myocarditis independent of, and not accompanied by any changes in the endo- or pericardium. The new connective tissue had started from the interference of the circulation through the obstruction in the coronary arteries. (3) The white masses, appearing like tumors, were areas of dense new connective tissue. (4) The aneurism was one of the results of the destruction of the muscle fibres, and the giving way of the heart wall from chronic interstitial myocarditis.

DR. FARQUHAR FERGUSON presented specimens from a case of PROSTATIC ABSCESS WITH RESULTING THROMBI IN RIGHT AND LEFT BRONCHI; GUMMA OF THE KIDNEY.

The specimens were taken from John K., fifty-six years of age, who had been admitted to the New York Hospital on November 7, 1894. The history stated that he had had gonorrhœa for the first time about ten years ago, and that since that time there had been more or less discharge. Twenty-five years ago he had had syphilis. For the past four years he had noticed some difficulty in urination, and more or less incontinence. Three months ago a painful mass had been first noticed in the perineum. This had proved to be an abscess, which had opened spontaneously. Since that time most of the urine had been discharged through this opening. Later on, another perineal sinus had formed more anteriorly. At the time of his admission to the hospital, most of the urine was passed through these sinuses; his urine was cloudy, and contained pus and about five per cent. of albumin. Physical examination showed the upper half of the glans penis to have been eroded by a chancre, and the whole region to be in a more or less cicatricial condition. A No. 23 sound was passed into the bladder. In the anterior part of the perineum on the right side of the base of the scrotum was a sinus, two and a half inches deep, which communicated with the urethra. Well back on the left buttock was another sinus, also discharging urine. On November 14th, under ether, Dr. Stimson laid open the sinuses, curetted them, and packed the wounds with iodoform gauze. On each of the two succeeding days the patient had a chill. The wounds looked fairly healthy, and more urine was discharged through the natural channel than had passed for some time previously. Three

days later he was up and around the ward. On the evening of November 24th he had another chill, followed by a temperature of  $101.8^{\circ}$ ; his pulse was almost imperceptible, and his breathing very labored. On November 26th he was again about the ward, but in the early part of that evening he suddenly fell dead.

The autopsy showed a large abscess cavity filled with pus situated behind the prostate. The bladder was enormously hypertrophied, and the urethra showed strictures and evidences of false passages having been made. There was a moderate dilatation of the pelves of the kidneys. A thrombus was found in the right and left bronchi.

DR. FERGUSON also presented specimens showing

TUBERCULOSIS AND SARCOMA IN THE SAME INDIVIDUAL.

Mary R., sixteen years of age, a Syrian, had been admitted to the hospital on February 19, 1894, with the history of having had a swelling on the left side of the neck for the past three years. This swelling had been incised on two occasions, and had continued to discharge. One month before admission a swelling had appeared on the right side of the neck. Two years before, the left elbow had become somewhat enlarged and painful. On admission, the physical examination showed the left side of the neck to be the seat of a swelling which extended from the ear below the jaw nearly to the median line, and down to the clavicle. There were three granulating areas. On the right side of the neck was a tumor about the size of an egg. There was also a slightly tender swelling on the ulnar side of the left elbow. On February 21st, an extensive dissection was made of the left side of the neck, and the glands removed. On account of the amount of skin necessarily removed at the operation, the wound healed largely by granulation. Eighteen days after the operation, acute pain and swelling developed in the left elbow, and three days later, March 14th, the elbow was incised, and a large amount of grayish and fatty degenerated tissue was dissected away. It completely surrounded the ulnar nerve for two or three inches, and extended under the posterior fascia up to the olecranon, and into the extensor muscles of the forearm. The wound was partly stitched, and partly packed with iodoform gauze. With the exception of two small sinuses the wound had entirely closed three weeks after the operation. On April 6th, the glands were dissected away from the right side of the neck. On April 27th it was noted that there

was a sinus in the arm and in the neck, and that the left ankle had just become swollen. It was at once encased in plaster of Paris. On May 23d an abscess of the ankle was opened. On May 30th, it was noted that the recurrent tumor in the left elbow was rapidly enlarging. On July 9th, the history states that there was an abdominal tumor reaching up to a point between the umbilicus and the ensiform cartilage. By July 23d, the sinus in the neck and elbow had closed. The abdominal tumor had increased, its boundaries being a curved line from the eighth rib to two inches above the umbilicus, and to the middle of Poupart's ligament on the left side. The patient was then sent into the country. On her return, September 1st, she was greatly emaciated; all the tumors had increased in size, and, in addition, there were six subcutaneous nodules in the abdomen and chest. She died on November 28th.

This woman, at the time of her admission to the hospital, had had typical tubercular glands of the neck; and the gross appearance of the tissue removed from the elbow was also that of tubercular tissue, but the microscopical examination showed it to be typical sarcoma. After death, all the tumors were removed. There were sixteen of them in the abdominal wall. Undoubtedly the speaker said, this girl had had both tuberculosis and sarcoma. The tumors had involved the ovaries, but not the uterus. The more recent tumors of the neck were secondary sarcomata. The kidneys showed several nodules, which would probably prove on further examination to be sarcomatous.

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*Stated Meeting, December 12, 1894.*

GEORGE C. FREEBORN, M.D., PRESIDENT.

DR. PEARCE BAILEY presented, through the courtesy of Dr. Hodenpyl, specimens from a case of

RUPTURED ANEURISM OF THE ARCH OF THE AORTA.

A man, fifty-nine years of age, came to the Roosevelt Hospital last October. Three months before, he had become over-heated and had been in the Presbyterian Hospital for five hours. On leaving that hospital he had complained of some pain about his chest. On entering the Roosevelt Hospital in October, he was suffering from paraplegia which had occurred very suddenly and



without apparent cause. Examination showed loss of knee-jerks, incontinence of urine and fæces, and anæsthesia below the mid-thoracic zone, but extending irregularly from the fourth intercostal space on the left side, and the fifth intercostal space on the right side. Examination of the urine was negative. He died a few days after admission. The house staff were positive that there was no circulatory cause of death.

At the autopsy, the spleen and the liver were found in a condition of chronic venous congestion, and the kidneys were the seat of chronic diffuse nephritis. The lungs were apparently normal. The left pleural cavity contained about one pint of clear serum. There was a very little fluid in the right pleural cavity, but at the bottom of this cavity there were about two quarts of blood clots. At the lower and posterior part of the arch of the aorta was an opening measuring about  $1\frac{1}{2}$  by 1 inches. It had rounded edges, and communicated with a thick aneurismal sac. The aneurism had eroded the adjacent vertebræ. The heart was of about the normal size. There was atheroma of the coronary arteries and of the abdominal aorta. On opening the spinal cord by the posterior method, a firm blood clot was found embedded in the dural fat. It was situated on the posterior surface of the dura at a point corresponding to the third, fourth, and fifth dorsal segments, and was distinctly circumscribed. Underneath this clot at the fourth dorsal segment of the cord was an area of necrosis.

From the nature of the aneurismal opening, and from the fact that there was clear serum in the upper part of the pleural cavity with clotted blood lower down, it was evident that the aneurism must have ruptured some time before death; yet the patient had not given any definite symptoms of such a condition. Was it possible that the aneurism had ruptured three months previously while he was at the Presbyterian Hospital? It was also interesting to note that on the left side the clot was below the third, fourth, and fifth segment, and that on that side of the body the anæsthesia extended about two inches higher than on the other side.

DOUBLE EMPYEMA; ACUTE LEPTO-MENINGITIS; LARGE MECKEL'S DIVERTICULUM.

DR. GEORGE P. BIGGS presented several specimens from a case giving the following history:

A male, fifty years of age, had been found in a lodging-house

on the same day on which he had died. It was stated that he had walked into the house on the night previous. When found, he was semi-comatose ; there was marked rigidity of the muscles of the back of the neck ; the pupils were symmetrically contracted and not responsive to light. Pus was found in both pleural cavities. The man died while preparations were being made to evacuate the pus by rapid incision.

At the autopsy, which was made twelve hours after death, the rigor mortis was extremely slight. There were two quite superficial recent abrasions over the second toe, and one over the right knee. The abdominal cavity was normal, with the exception of a slight recent perihepatitis. The diaphragm was depressed about one space on each side. Each pleural cavity contained about 1500 cc. of sero-purulent fluid, and the lower and posterior portions of both lungs were covered with very thick layers of purulent fibrin. The layer over the right lung was  $1\frac{1}{2}$  ctm. in thickness. The lungs were adherent posteriorly, and during life gave rise to numerous râles over the posterior portion of the chest. On cutting open the lungs, the upper half of the upper lobe of the left lung showed a mass of fibrous tissue, with cheesy areas scattered through it, showing the existence of an old tuberculosis. In another portion of the same lung were several small, grayish, shot-like tubercles, evidently of very slow growth. Similar lesions, though of less extent, were found in the apex of the right lung. The vessels were free from thrombi, and there was no œdema. The pericardial sac was greatly distended with thin pus, and both surfaces of the pericardium were covered quite thickly with purulent fibrin. The clinical record showed that the heart sounds had not been particularly feeble, and that there had been no friction sounds heard.

In the same case there was an acute lepto-meningitis, involving both the brain and spinal cord. The exudate was over the entire surface, but was most abundant over the vertex and median surface. An unusual quantity of sero-purulent fluid escaped on incising the brain. The velum interpositum contained considerable pus, and there was a small amount of purulent fluid in each lateral ventricle. Examination of the fresh blood from the brain and pericardium showed in the former an unusually large number of diplococci with distinct capsules. In the fibrin from the surface of the lung and from the pericardium, a few of these only were found.

An unusually large Meckel's diverticulum was present in this case. It was about two feet from the ileo-cæcal valve, and was 14 ctm. in length and 3 ctm. in diameter. There were a number of small secondary diverticula near the termination. At the hepatic flexure of the colon were four pigmented cicatrices,  $\frac{1}{2}$  to 2 ctm. in diameter, and feeling more or less nodular.

DR BIGGS also presented specimens from a case of

ENCAPSULATED EMPYEMA ; ULCERATIVE ENDOCARDITIS ; RENAL CALCULUS.

This patient was a female, forty-five years of age, who first complained of sickness about five weeks before she came under observation at the New York Hospital. On admission, she complained of pain on the right side with dyspnœa, and of cough with mucous expectoration. There was no chill or fever, and she did not take to her bed until about three weeks before death. On entering the hospital her temperature was  $100.6^{\circ}$ , respirations 36, and pulse 136. At this time there were signs of fluid in the right chest; the heart was intermittent and very feeble. The right chest was aspirated, and seventeen ounces of purulent serum withdrawn. The temperature then rose to  $103.4^{\circ}$ . The chest was accordingly incised and drained. Examination of the urine showed a trace of albumin with granular casts. The temperature still remained between  $104^{\circ}$  and  $105^{\circ}$  after this drainage of the chest; she developed slight delirium, and finally died twelve hours after the operation.

At the autopsy, a double empyema was found. The cavity which had been drained was free from fluid, but there was considerable fibrin. On the left side there was an encapsulated empyema over the middle of the lower lobe, containing about six ounces of pus. The heart was slightly dilated. The left ventricular wall was very slightly hypertrophied. The tricuspid, mitral, and aortic valves, were perfectly normal. On two of the cusps of the pulmonary valve were large thrombi; with ulceration of the under surface of the valve. The largest thrombus had a diameter of 2 ctm., was very firm, and distinctly laminated. The lungs were congested and œdematous, and there was some hypostatic consolidation of the posterior portions. The spleen was two and a half times its normal size, and quite soft. The left kidney was much larger than normal, the capsule was slightly

adherent, the surface was finely granular, and the cortex showed many cysts. The right kidney was surrounded by an unusually thick layer of adipose tissue. The kidney appeared outwardly to be about normal, except that its capsule was adherent. The pelvis was considerably dilated, and contained a calculus, 4 by  $1\frac{1}{4}$  ctm., one end of which fitted into the opening of the ureter. Around the pelvis was a thick deposit of solid adipose tissue between the pelvis and the kidney tissue proper. The latter formed a ring only about  $\frac{3}{4}$  ctm. thick at the surface.

#### TUMORS OF THE SKIN—MYCOSIS FUNGOIDES.

DR. BIGGS next presented some unusual tumors of the skin. They had been removed from a married woman, thirty-five years of age, whose family and personal histories were negative. About four years before coming under observation at the New York Hospital, she had first noticed an eruption on the legs, arms, and back, which was described as consisting of red pimples slightly depressed in their centres. These had grown slowly until some of them had reached the size of a hen's egg. Some had disappeared spontaneously, it was said, leaving a copper-colored stain, while others had ulcerated. The urine had been normal; the temperature  $99.2^{\circ}$ , the pulse 80, and the respirations 20. At the time of admission, examination showed an immense number of reddish non-indurated spots on the legs, and a few on the back. There were twenty to thirty nodules, varying in size from a pea to a hen's egg, and ulcerated on their flattened surfaces. The large ones were found chiefly on the legs, thighs, and hips. They were all very freely movable, and slightly constricted at the base. The glands of the groin and axilla were enlarged. A number of the large tumors were removed from different situations. About two weeks after this, the history stated, two tumors had nearly disappeared spontaneously, and two weeks later some new tumors had appeared.

Three of these large growths were presented to the Society. One had a diameter of 8 ctm., and was elevated about 3 ctm. above the surrounding skin; another was  $5\frac{1}{2}$  ctm. in diameter, and the third was 3 ctm. in diameter. In the fresh state they were red over the surface, and appeared to be superficially ulcerated. On incision, they were found to be of firm consistence, grayish in color, moderately vascular, and not degenerated in any

portion. Microscopical examination showed that the epidermis was not involved except where ulceration had occurred, the process having been in the derma and subcutaneous tissue. In structure they consisted mainly of small round cells with a small amount of young connective tissue mixed with them. The blood-vessels had quite thin walls. The appearance was not unlike that of some cases of apparently simple adenitis. It also bore a striking resemblance to a sarcomatous growth, so that it had been a matter of dispute whether these growths could be distinguished from sarcomata. Those who claimed to distinguish between the two, said that the clinical history was different—the condition beginning as an eruption not unlike lichen planus, and the fungoid growths not developing for some time afterward. Another distinguishing point was the spontaneous disappearance of some of the tumors, eventually leaving not even a copper-colored staining. If no complication occurred, death resulted in these cases from progressive anæmia or from the development of leukæmia. A few observers had found the condition associated with a micrococcus, but many other observers had not found them present.

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*Stated Meeting, December 26, 1894.*

GEORGE C. FREEBORN, M.D., PRESIDENT.

DR. J. S. THACHER presented a specimen of

SARCOMA OF THE HEART.

The specimen had been taken from a man, fifty-nine years of age, whose history revealed nothing bearing upon this condition. Eleven months ago, after some exposure, he began to suffer from dyspnœa, palpitation of the heart, and vertigo. Five months ago he noticed œdema of the feet, which lasted for about one month, and afterwards was noticed occasionally to a slight degree. He lost flesh rapidly. Two months ago he came to the hospital. At that time, he was emaciated, but not anæmic. An examination of the heart revealed only a moderate roughening of the sounds at the apex. There was some pain in the abdomen, chest, and left

shoulder, and later there was severe pain in the epigastrium. About one month ago, grating friction sounds were heard over the apex of the heart, and there were signs of fluid over the left chest. A needle was introduced, and clear serum withdrawn which gave no cultures. The urine showed a trace of albumen and some granular and hyaline casts. The temperature was elevated most of the time, ranging between  $100^{\circ}$  and  $103^{\circ}$ .

At the autopsy, an abundant fibrinous pericarditis was found, and in the wall of the left auricle a firm mass measuring  $3 \times 2 \times 1\frac{1}{2}$  inches. It was situated to the back and right of the left auricle, and to the left of the right auricle and superior vena cava. On section, it was yellow, gray, and red in patches. Projecting from this into the left auricle was a nodular polypoid mass, measuring  $1 \times 1\frac{1}{2} \times \frac{1}{2}$  inch. The ventricles were small. There were small vegetations on the mitral and aortic valves, and a slight adhesion of two of the aortic cusps. Each pleura contained about one litre of pure serum. Examination of the stomach showed behind the cardiac orifice a firm mass, three inches in diameter. On section, it was cheesy in appearance, and was broken down at the centre, and there was a communication with the stomach by an aperture, one inch in diameter. Microscopical examination of these growths showed them to be small round-cell sarcoma with considerable hemorrhage and necrosis.

#### MYCOSIS FUNGOIDES.

DR. GEORGE P. BIGGS exhibited sections of the tumors presented to the Society at its last meeting, as examples of mycosis fungoides.

DR. BIGGS also reported that the cultures from the meningitis case were pure cultures of the *diplococcus lanciolatus*, and that animals inoculated with these cultures died promptly.

#### SARCOMA IN A RAT.

DR. BIGGS then presented the left anterior extremity of a rat, showing a tumor involving the shoulder and neck. The tumor was well encapsulated, and divided into large lobules. It measured  $7 \times 4\frac{1}{2} \times 3\frac{1}{2}$  cm. On section, it was for the most part gray, but there were a number of reddish patches, apparently due to hemorrhage. Sections of this tumor were also exhibited under



the microscope. They showed it to be a myxo-sarcoma. The cells of the sarcomatous portion were round cells, small and medium-sized: a few had two nuclei, but most of them had a single nucleus. The growth was extremely vascular, and through it were scattered areas of hemorrhage.

In the same animal, the kidneys showed very marked chronic diffuse nephritis with the formation of cysts of quite large size. The surface was distinctly granular. The liver contained a small cyst, within which was a worm,  $3\frac{1}{2}$  ctm. long, 1 mm. at its small end, and 3 mm. at the larger end.

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*Anniversary Meeting, January 9, 1895.*

GEORGE C. FREEBORN, M.D., PRESIDENT.

DR. GEORGE P. BIGGS presented a specimen of

AORTIC ANEURISM

which had been removed from a male, forty-three years of age, who had been admitted to the New York Hospital, May 21, 1894. He stated that he had had syphilis when fifteen years of age. He was moderately alcoholic. On admission, he was complaining of cough, and of a pain in the right chest, right arm, and side of the head, which had existed for about one year previously. In the month previous to his admission, he had felt something give way while he was putting on his coat, and this had been quickly followed by cyanosis and choking, and by the appearance of a swelling on the side of the neck. Previous to this some pulsation had been observed in the neck.

Physical examination revealed the following: Diminished voice and breathing at that time over the right chest, both anteriorly and posteriorly; a systolic murmur of low pitch, heard at the apex, and transmitted slightly to the left; in the second left intercostal space there was a systolic murmur, heard over the right border of the sternum, and transmitted upwards to the right, and to the vessels of the neck, and heard with maximum intensity in the first right intercostal space. Over the right side of the chest

behind there was a loud, double, blowing murmur, one systolic, and the other diastolic. The left radial pulse was slightly stronger than the right. The arteries were slightly tortuous. The liver extended two inches below the free border of the ribs. There was marked œdema of the entire head and neck and upper portion of the thorax; no œdema elsewhere. Over the dull region in the upper part of the chest in front, where the percussion note was dull, there was a distinct pulsation and thrill.

The œdema of the chest increased; he developed œdema of the arms shortly after admission, and later œdema of the abdominal walls and genitals, and fluid appeared in the peritoneal cavity. These symptoms improved after admission, and he was discharged from the hospital, but during the summer he returned on three different occasions, for a few days at a time, because of the dyspnœa. He was last admitted on November 13th, and presented at that time very marked œdema of the neck, head, and upper portion of the chest, the œdema being most marked in the right upper extremity. The face was rather cyanotic, particularly about the ears. He suffered very greatly from dyspnœa, and complained of a constant choking sensation. The cyanosis and œdema increased, and he died on November 30th.

At the autopsy, made on the following day, the œdema of the head, neck, upper extremity, and upper portion of the thorax was still very marked; the peritoneal cavity was normal, the right pleural cavity contained 1200 cc. of serous fluid, and there were a number of old and very dense fibrous adhesions over the right upper lobe. The left pleural cavity contained 200 cc. of serous fluid. The pericardial fluid was slightly increased in quantity. In the upper portion of the chest, just above the heart, and a little more to the right of the median line, was a large ovoid tumor, measuring 11 ctm. vertically, and 8 ctm. in its antero-posterior and transverse diameters, and having a circumference of  $28\frac{1}{2}$  ctm. The tumor was partly covered by the right lung, which was very intimately united with the tumor. It extended down sufficiently far to depress the parietal layer of the pericardium over the right auricle, and the surface of the tumor was adherent to the parietal layer of the pericardium at this point. It almost completely covered the ascending and transverse portions of the arch of the aorta, and the vessels arising from the transverse arch. The heart was slightly hypertrophied. The valves appeared

to be normal, although the orifices on the left side were both fairly large, and there had probably been some leakage. The coronary arteries were distinctly atheromatous. On opening the aorta, the tumor proved to be a large aneurism, arising from the junction of the ascending and transverse portions of the arch, about 1 ctm. to the right of the origin of the innominate artery. The opening into the sac was round and very large, measuring  $4\frac{1}{2}$  ctm. in diameter. The edges were quite sharp and smooth. The sac was filled with post-mortem clots, and there were no layers of stratified fibrin on the inner surface. The entire length of the aorta showed a very advanced degree of atheroma.

The point of interest in the case was a communication found between the interior of the sac and the superior vena cava. The sac wall was everywhere quite thin—only one to two millimetres in thickness—and undoubtedly ruptures had occurred at two points, and the effused blood had been encapsulated, as was shown by two nodules filled with old blood and blood crystals. The aneurism had markedly compressed the superior vena cava, and the opening leading from the sac into the vena cava was oval in shape, and measured  $1\frac{1}{2}$  ctm. vertically by 1 ctm. transversely. The right innominate and the upper portion of the superior vena cava were very much dilated, and had a diameter of 2 ctm. Below this opening the vena cava was so compressed that the lumen during life must have been very largely occluded. A probe passed down from the jugular above, entered the sac of the aneurism, and did not follow the normal course through the lower portion of the vessel. Both the orifice of the right subclavian vein and that of the right internal jugular were guarded by a very perfect bicuspid valve, which had completely prevented the forcing of any blood from the aneurismal sac into these vessels themselves. The force of the blood was expended on the right innominate and upper portion of the vena cava. The wall of the subclavian vein was considerably increased in thickness. The left innominate was found to be completely occluded from a point about 2 ctm. from its origin across to the right innominate, the course of the vessel being along the upper wall of the aneurismal sac. The left jugular was quite moderately dilated, and the walls not specially increased in thickness. The internal mammary vein was quite large, but aside from this no special changes were observed on the left side. The speaker said he had been unable to determine how the blood had been returned from this side, although it was

probably through the communicating branches across the front of the neck. The organs of the neck had been taken out *en masse* without knowing at the time of anything unusual in this region. The communication between the sac and the superior vena cava was very clearly an old one, the opening being perfectly smooth and sharply defined. Undoubtedly the opening occurred last April at the time the patient felt something give way in his neck. The wall of the vena cava was adherent to the aneurismal sac for a considerable distance below the point of communication.

DR. THOMAS S. SOUTHWORTH presented a specimen of

#### LOCALIZED EMPYEMA.

It had been removed from a child in the Nursery and Child's Hospital, seven months old. According to the history, it had been sick for only two weeks, and a diagnosis had been made of broncho-pneumonia. On opening the chest at the autopsy, a cavity was seen lined by a pyogenic membrane, but otherwise dry. This displaced the heart to the left. It was about the size of an egg. Looking underneath the edge of the ribs, a small opening was seen in the anterior axillary line, situated close to the ribs, about half an inch in diameter. Inserting the finger into this opening, a cavity was revealed posteriorly, which contained about one ounce of pus. There were a few areas of recent broncho-pneumonia in the other lung.

The interesting feature of this case was the fact that one of these empyemic cavities should be found entirely empty, while the other was nearly full of pus. If an incision had been made in the chest anteriorly during life, the child being in the recumbent position, little or no pus would have been evacuated.

DR. JAMES EWING presented a specimen from a case of

#### RUPTURE OF THE BLADDER, AND PERITONITIS.

The patient, a man of forty-four years, of very alcoholic habits, had been admitted to the Roosevelt Hospital on January 2, 1895. He had been drinking the day before, and was found on the morning of January 2d, on the steps of his house. He then vomited and passed some bloody urine. By the time he reached the hospital, it was evident that he was suffering from general peritonitis, but its cause was not apparent. Soon after admission

he was catheterized, and two ounces of clear urine removed. Its specific gravity was 1025, and it contained a trace of albumin, uric-acid crystals, and epithelium from the bladder. For the next three days he passed a normal quantity of clear urine, but on January 5th, the urine had a specific gravity of 1032, was alkaline in reaction, and contained a trace of albumin, and apparently gonorrhœal threads. He died on January 8th.

At the autopsy, all the organs were found to be normal except the peritoneum and bladder. The peritoneal cavity contained a small quantity of gas, and was moderately distended with a turbid fluid, said to have had a peculiar odor—probably ammoniacal. No point of origin for the infection could be found until the bladder was reached. The bladder projected into the pelvic cavity like a hen's egg, and was rather thickly covered with fibrin. After taking out the bladder, some of these layers of fibrin were removed, disclosing a lesion in the posterior surface of the fundus. An incision through this coat did not show that the rupture had been complete, but on the inner surface of the bladder, beneath the abrasion on the peritoneal surface, the folds of the bladder were œdematous and infiltrated with blood. There had been apparently an attempt at healing, as there was some difficulty in separating the edges of the rent. It was interesting, therefore, to note the occurrence of rupture of the bladder from some unknown cause, and unattended by any symptoms except those due to the peritonitis. It was also interesting to note that after the peritonitis had been excited, the process of healing in the bladder itself should have begun, making it difficult to demonstrate the rupture at autopsy. The whole thickness of the abdominal wall in front of the bladder had been carefully examined, and no ecchymosis or any other evidence of injury had been found.

Dr. S. T. ARMSTRONG said that the condition found in the specimen would seem to eliminate an external traumatism. It was possibly the result of catheterization.

The PRESIDENT thought it quite probable that the bladder had been greatly distended during a spree, and that the man had fallen at this time and had received a blow over the bladder.

Dr. EWING said that the mucous membrane showed no sign of traumatism, whereas the lesion was evident on the peritoneal surface, hence it was fair to exclude traumatism from the introduction of an instrument.

Dr. W. G. LE BOUTILLIER said that urine did not ordinarily contain pyogenic germs, so that its escape into the peritoneal cavity ought not to set up peritonitis. For this reason, one should look for a traumatism or some method by which the micro-organisms were conveyed into the bladder and peritoneal cavity.



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